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ABSTRACT

As part of the Career Planning Program (CPP) introduced in 1971 by the American College Testing Program, the program component, CPP 8-11, emphasizes career exploration. The document describes the program, its uses, and its development, and summarizes related research. Following the program rationale, Part 2 discusses (1) assessment components measuring interests, abilities, and career-related experiences and (2) career guidance components directed toward career planning and their administration and scoring. Part 3 discusses CPP 8-11 uses in career guidance programs, facilitating self-awareness via score profiles, and offers suggested units and resources for a career planning mini-course. The descriptions of each assessment component, the research on their measurement properties, and comparisons with CPP 12-13 are found in Part 4. References are listed, and data from studies are extensively displayed in tabular and graphic form. The appendix provides resources for the mini-course, a guide for increasing student career development with suggested resources and activities, a guide to developing and using a Career Information File organized around job families of CPP 8-11, job families related to course areas, job families from CPP 8-11 related to the U.S.O.E. career clusters, tables indicating the norms of the CPP 8-11 assessment components, and transparency masters. (JB)

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Handbook

User's Guide and Summary of Research

SELF AWARENESS
SELF
CAREER
EXPLORATION
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The American College Testing Program

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PREFACE

First introduced by ACT in 1971, the Career Planning Program (CPP) was expanded in 1973 to include three coordinated services designed to be used by students and their counselors in junior high schools, high schools, and postsecondary educational institutions. The three services of the Career Planning Program assist students and counselors with various phases and aspects of career (educational and vocational) exploration, planning, and decision making.

The Assessment of Career Development (ACD)

The Assessment of Career Development, a new kind of guidance assessment program, provides information useful to counselors in tailoring career guidance programs to student needs. Designed for use with 8th through 11th graders, the ACD assesses occupational awareness, self-awareness, and career planning knowledge and involvement in a single program. It also summarizes student reactions to their career guidance experiences. Information is provided to ACD users in both Group Summary Reports and Student List Reports.

The Career Planning Program for Grades 8-11 (CPP 8-11)

The emphasis in the Career Planning Program for grades 8-11 is on career exploration. The CPP 8-11 assesses student experiences, interests, and abilities, and helps the student identify and explore career options. The program may also be adapted for use as a "mini-course" in career guidance. In addition to providing traditional score information, the CPP 8-11 Student Report relates measured interests and abilities to job clusters and job families. As described in this handbook, the CPP 8-11 student's guide, *Exploring: You and Your Career,* contains a number of exercises and suggestions for involving students in career exploration.

The Career Planning Program for Grades 12-13 (CPP 12-13)

The Career Planning Program for grades 12-13 emphasizes postsecondary planning. It was developed for use with students who are undecided about career plans, or who are planning to enter postsecondary vocational, technical, or transfer programs. The CPP 12-13 Student Report contains extensive information about the student, and relates individual interests, competencies, and abilities to eight occupational clusters. Performance estimates are provided for more than 20 vocational, technical, and transfer programs along with an indication of which programs students might want to explore on the basis of their interests, competencies, and working condition preferences.

[Continued]

The Assessment of Career Development and the Career Planning Program for grades 8-11 are published by the Houghton Mifflin Company in cooperation with ACT. The CPP 12-13 is available directly from The American College Testing Program. ACT and Houghton Mifflin are pleased to provide these services to America's schools as they strive to meet the challenge posed by the career development needs of America's youth.

Development of the Career Planning Program for grades 8-11 was directed by Nancy Cole and Dale Prediger under the general supervision of Leo Munday. Dale Prediger and John Roth shared editorial duties in the preparation of this handbook. Responsibilities for the various parts of the handbook were as follows: Part 1, Dale Prediger; Part 2, Dale Prediger and Rick Noeth; Part 3, John Roth, Rick Noeth, and Dale Prediger; Part 4, the aforementioned ACT staff members plus Nancy Cole, Dick Ferguson, Tom Gartland, and Gary Hanson; Appendixes, John Roth, Harold Engen, and Rick Noeth. Maureen Olsen and Teresa McCombs provided invaluable help with computer processing, and Patricia Gartland assisted in editing the manuscript.

Iowa City, Iowa
January 1974

The American College Testing Program

TABLE OF CONTENTS

PART 1: **WHY A CAREER PLANNING PROGRAM FOR GRADES 8-11** 1
Concepts and Objectives Guiding Career Planning Program Development 1
The Career Planning Program in the Context of Guidance Testing 3

PART 2: **THE CPP 8-11: WHAT IT IS** 5
Overview of CPP 8-11 Components 5
  Assessment Components 5
  Career Guidance Components 7
  Relationship to Other ACT Guidance Assessment Programs 11
Administration and Scoring 11
  Overview of Administrative and Scoring Procedures 12
  Administrative Options for Inventories in Booklet 1—*Exploring: You and Your Career* 12
  Administrative Options for Booklet 2—*Ability Measures* 12
  Option for Administering Booklets 1 and 2, Combined 13
  Scoring and Reporting Services 13
  National Norms and Score Scales 13
Appropriateness of the CPP 8-11 for Various Student Groups 16
  Factors Related to Readability 16
  Using the CPP 8-11 with Poor Readers 16

PART 3: **THE CPP 8-11: HOW IT CAN BE USED** 17
The CPP 8-11 as Part of a Career Guidance Program 17
  Career Awareness 17
  Self-Awareness 17
  Career Planning and Decision Making 18
A Note on Traditional Uses of CPP 8-11 Results 19
  Facilitating Self-Awareness via Score Profiles 19
  Estimating Expected Performance 20
A Mini-Course in Career Planning 21
  Purposes 21
  Course Participants 21
  Course Size 21
  Resources Required 22
  A Capsule Summary of the Course for Students 22
Suggested Units for the Mini-Course in Career Planning 23
  UNIT 1: An Introduction to the CPP 8-11 and Career Development 24
  UNIT 2: Career Planning and Decision Making 25
  UNIT 3: Self/Career Awareness: Job Family Preferences, Job Values, and Working Condition Preferences 26
  UNIT 4: Self/Career Awareness: Career-Related Abilities and Educational Plans 27
  UNIT 5: Relating Your *SELF* to Careers and the World of Work 28

UNIT 6: Student Career Exploration: Activities Involving Reference Materials 29
UNIT 7: Student Career Exploration: Activities Involving People and Personal Experiences 30
UNIT 8: Self-Evaluation of Career Planning 31
Follow-up Unit for the Mini-Course in Career Planning 32
UNIT 9: Guiding Students to Interpret Their CPP 8-11 Student Reports 32

PART 4: **CPP 8-11 DEVELOPMENT AND SUMMARY OF RESEARCH** 33
Development of CPP 8-11 Assessment Components 33
Comparison of CPP 8-11 and CPP 12-13 Measures 33
Initial Stages of CPP 8-11 Development 38
Development of a Preliminary Form for the CPP 8-11 39
Final Revisions of the CPP 8-11 Preliminary Form 40
The National Norming Study 40
Sampling Procedures 40
Data Collection Procedures 41
Content of CPP 8-11 Assessment Components 42
Formal Assessment Components 42
Informal Assessment Components 46
Reading Level of CPP 8-11 Assessment Components 48
Reliability and Related Scale Characteristics 49
Estimates of Reliability 49
Internal Estimates of Reliability 49
Test-Retest Reliability 50
Standard Errors of Measurement for the CPP 8-11 Measures 52
Degree of Speededness 53
Floor and Ceiling 54
Validity 54
Criterion-Related Validity 54
Prediction of Course Performance: CPP 8-11 55
Prediction of Course Performance: CPP 12-13 59
Differentiation of Educational Programs: CPP 12-13 60
Differentiation of College Majors: The ACT Interest Inventory 67
Differentiation of Job Family Preferences: CPP 8-11 67
Construct Validity 73
Development of the ACT Occupational Classification System 73
Intercorrelations of CPP 8-11 Measures 78
Correlations with Other Measures 81
The CPP 8-11 Exploration Priority System 86
Exploration Priorities Based on Interest Measures 86
Exploration Priorities Based on Ability Measures 87

REFERENCES 91

APPENDIXES

A: Bare Essential Resources for Supporting a Mini-Course in Career Planning 95
B: A Guide for Increasing Student Career Development 97
C: A Guide to Developing and Using a Career Information File Organized around the Job Families of the CPP 8-11 116
D: CPP 8-11 Job Families Related to Course Areas 122
E: Relating CPP 8-11 Job Families to the U.S. Office of Education Career Clusters 123
F: CPP 8-11 Norms 125
G: CPP 8-11 Transparency Masters 134

LIST OF TABLES

TABLE Page

2.1 Administrative Options for Booklet 1 12

2.2 Administrative Options for Booklet 2 13

2.3 Comprehensive Four-Session Administration Model Including All CPP 8-11 Measures 14

2.4 Stanine Scores and Associated Percentile Ranks 15

4.1 Relationship between CPP 8-11 and CPP 12-13 Assessment Components 34

4.2 Correlations between CPP 8-11 and CPP 12-13 Ability Scales, Males and Females Combined 35

4.3 Correlations between CPP 8-11 and CPP 12-13 Interest Scales, Males and Females Combined 36

4.4 Correlations between CPP 8-11 Experience Scales and CPP 12-13 Competency Scales, Males and Females Combined 37

4.5 CPP 8-11 Item Tryout Samples 39

4.6 Number of Students in CPP 8-11 Norm Group by Grade and Sex 41

4.7 Number of Schools in CPP 8-11 Norm Group by Grade and Size of Community 41

4.8 Number of Schools in CPP 8-11 Norm Group by Grade and Region 41

4.9 Number of Schools in CPP 8-11 Norm Group by Region and Size of Community 42

4.10 CPP 8-11 Interest Scales with Corresponding Holland Types and Roe Groups 43

4.11 Representative Items for CPP 8-11 Interest Scales 44

4.12 Representative Items for CPP 8-11 Experience Scales 45

4.13 Summary of Reading Levels for the CPP 8-11 48

4.14 A Comparison of the CPP 8-11 10% Sample with the Weighted Results for the Total Norm Group on Ability, Interest, and Experience Scales 50

4.15 CPP 8-11 Reliabilities and Related Characteristics for Grades 8 and 11, Males and Females Combined 51

4.16 CPP 8-11 Test-Retest Reliabilities for Grades 9 and 11, Males and Females Combined 52

4.17 Degree of Scale Speededness for Grades 8 and 11, Males and Females Combined 53

4.18 Overview of Schools Participating in Grade Prediction Studies 55

4.19 Correlations between CPP 8-11 Ability Scales and Course Grades (Part 1) 56

4.20 Correlations between CPP 8-11 Ability Scales and Course Grades (Part 2) 58

4.21 Correlations between CPP 8-11 Ability Scales and Overall GPA 59

4.22 Multiple Correlations of Selected Career Planning Profile Predictors with Grades 60

4.23 Differences on CPP 12-13 Single-Item Self-Report Scales for Students Grouped by Program Cluster: Men 62

4.24 CPP 12-13 Measures Used in Discriminant Analyses 63

4.25 Percentages of Males within Each Educational Program Who Received Their Highest, Second Highest, or Third Highest Centour Scores for the Program in Which They Were Enrolled 66

4.26 Varimax Loadings of First Two Principal Components for Interest Scales 72

4.27 Rank Order of Job Families on First Two Principal Components for Interest Scales 72

4.28 Interest and Experience Scale Intercorrelations for Grade 8 Males and Grade 8 Females 80

4.29 Interest and Experience Scale Intercorrelations for Grade 11 Males and Grade 11 Females 80

4.30 Ability Scale Intercorrelations for Grades 8 and 11, Males and Females Combined 81

4.31 Ability Scale Intercorrelations for Grade 11 Males and Grade 11 Females 81

4.32 Correlations between the CPP 8-11 Interest Scales and VPI Scales for Grade 11 Males and Females 82

4.33 Correlations between the DAT and CPP 8-11 Ability Scales for Two Samples of 9th Grade Students, Males and Females Combined 83

4.34 Correlations between CPP 8-11 Interest Scales and the Kuder General Interest Survey for Grade 9, Males and Females Combined 84

4.35 Correlations between CPP 8-11 Interest Scales and the Ohio Vocational Interest Survey Scales for Grade 9, Males and Females Combined 85

4.36 Correspondence between CPP 8-11 Ability Scales and Other Measures Which Have Been Occupationally Validated 88

4.37 Ability Scales and Weights Used in Determining Exploration Priorities for the CPP 8-11 Job Families 89

LIST OF FIGURES

FIGURE

Page

2.1 CPP 8-11 Student Report (Front Side with Flap Closed) 8
2.2 CPP 8-11 Student Report (Front Side with Flap Open) 9
2.3 CPP 8-11 Student Report (Back Side) 10
3.1 The CPP 8-11 within the Context of a School Career Guidance Program 18
4.1 Differences in Profile Medians for Men Enrolled in Selected Program Clusters 61
4.2 Distribution of Educational Program Areas on First Two Discriminant Factors (Men) 64
4.3 Distribution of Educational Program Areas on First Two Discriminant Factors (Women) 65
4.4 Distribution of College Level Educational Programs on the First Two Discriminant Factors for Six ACT Interest Inventory Scales 68
4.5 Interest Profile for the Management and Planning Job Family 69
4.6 Interest Profile for the Paying, Receiving, and Bookkeeping Job Family 69
4.7 Interest Profile for the Machine Operating, Servicing, and Repairing Job Family 70
4.8 Interest Profile for the Natural Sciences and Mathematics Job Family 70
4.9 Interest Profile for the Creative Arts Job Family 71
4.10 Interest Profile for the Education and Social Services Job Family 71
4.11 Overview of the ACT Occupational Classification System 75
4.12 Job Clusters and Related Job Families 76
4.13 World of Work Map for Job Families 79
4.14 Example of Job Cluster with Exploration Priority "Stars" 87

PART 1: WHY A CAREER PLANNING PROGRAM FOR GRADES 8-11?

There is a growing awareness among educators today of the importance and complexity of career decisions. Increasingly, a career is being recognized as one of the central experiences of Man and Woman—as the making of a life as well as the making of a living (Super, 1957). Students, also, are recognizing the importance and complexity of career (educational and vocational) decisions. One of the most salient findings of ACT's recent Nationwide Study of Student Career Development (Prediger, Roth, & Noeth, 1973) is the large proportion of junior and senior high school students, both boys and girls, who express a need for help with career planning. As shown in the study, this need is also reflected in what students have (and more often, haven't) done to prepare for career decisions and in their lack of knowledge of the world of work and the career planning process. Particularly discouraging is the sharp contrast between student need for career planning help and the amount of help students feel they have received.

Clearly, much remains to be done by schools and supporting agencies if all students are to be prepared adequately for the difficult career-related decisions they must face during adolescence. Efforts to implement new approaches to career guidance appear to be amply justified and urgently needed.

The Career Planning Program for grades 8-11 (CPP 8-11) was developed to assist schools in meeting many of the career guidance needs of their students. The central goal of this new and unique assessment-based career guidance module is to stimulate and facilitate self and career exploration, including the exploration of self in relation to careers. More specifically, the Career Planning Program assists students with the difficult task of identifying and exploring viable career options.

Quite early in the development of the Career Planning Program, ACT recognized that guidance testing, in the context of career development theory and developmental career guidance programs, must function under a new set of objectives and requirements. Something more than test score profiles must be provided if tests are to make a significant contribution to the career development of youth. Through CPP 8-11 materials and services, ACT has attempted to provide the "something more." The concepts and objectives that guided the development of the Career Planning Program are discussed below. Readers who wish an overview of CPP 8-11 components prior to considering the rationale on which the program is based are referred to Part 2 of this handbook.

Concepts and Objectives Guiding Career Planning Program Development

1. **Career choice is not an event; it is a process which begins early in life and which involves a continuing sequence of experiences and decisions related to education and work.** A career may be said to encompass the educational and vocational strands of life—the series of educational and vocational experiences and decisions related to a person's productive role in society. According to career development theory, career-related experiences and decisions begin early in life and have a cumulative effect on subsequent decisions. Junior and senior high school students, in particular, face a series of career-related experiences, tasks, and decisions of considerable consequence. The Career Planning Program was designed to serve students at this difficult stage of career development.

The time-extensive, developmental nature of career-related experiences, tasks, and decisions emphasizes the need for *developmental* career guidance programs rather than the "one-shot," "square-peg, square-hole" vocational counseling of the past. In recognition that career exploration and planning is a continuous process which may benefit only slightly from a one-time test interpretation, CPP 8-11 materials were designed for use by students over an extended period of time. Students can (and should) be introduced to *Exploring: You and Your Career*, the CPP 8-11 Booklet, long before they complete the CPP 8-11 tests and inventories. Furthermore, *Exploring* can serve as a ready resource and guide for career exploration and planning long after students have received their test results.

2. **Career guidance involves helping students to consider the directions their lives will take rather than simply helping them to choose and prepare for occupations.** As usually defined, career guidance means educational and vocational guidance. But since a career encompasses a person's life, so does career guidance. Career guidance uses the educational and vocational strands of life as the basis for working with the individual. Accordingly, student materials for the Career Planning Program focus on broad concerns such as self-awareness, career awareness, and career exploration rather than on "finding the right vocation." Students are asked to consider the direction they want their careers to take—their goals, their values—[illegible] the implications of different career directions for personal satisfaction and life style. Test results are placed in the context of these concerns so that students will see the results in proper perspective.

3. **Testing should be only one part of a school's career guidance program.** Some career guidance programs consist mainly of the administration and interpretation of ability tests and/or interest inventories. As noted above, however, career guidance programs must be much more broadly defined. CPP 8-11 materials were designed for use in the context of a total career guidance program. Thus, they are intended to *supplement*, not *supplant*, the school's career guidance efforts. The Career Planning Program makes it almost impossible to continue that familiar evil of career guidance, "taking some tests to find out what to be."

4. **A testing program for career guidance must reflect the fact that a career cuts to the core of life—that career decisions involve feelings and experiences as well as facts.** Students must be helped to explore a broad range of personal characteristics and concerns as they relate to careers. Accordingly, in one articulated assessment program, the Career Planning Program provides six interest measures, six ability measures, and six measures of career-related experiences. In addition, students are asked to formulate tentative educational and vocational plans. In *Exploring*, they complete exercises involving self-ratings of job values, working condition preferences, and abilities. On a series of check lists, students are asked to indicate the steps they have taken in self exploration, career exploration, and career planning. More important, they are asked to note the steps remaining and are given concrete suggestions for completing these steps. The comprehensive nature of the assessment components in the Career Planning Program places it in sharp contrast to traditional test batteries which cover only aptitudes or only interests, or which fail to integrate test results with the career planning process.

5. **The major role of tests in career guidance is to stimulate career exploration and the exploration of self in relation to careers.** As career options become more complex and as work becomes less visible, one of the most difficult tasks faced by adolescents is the identification of career options appropriate to personal goals and characteristics. A major task of career guidance at this stage of career development is to provide students with a panoramic view of career options in the worlds of work and education, and then to help them find their way in these worlds. Perhaps the most appropriate term to describe this task is "focused exploration" (Prediger, 1974).

Tests and other assessment procedures can be used to provide focus to career exploration, not a focus that singles out the "right" occupation for Johnny or Sally, but rather a focus that points to regions of the work world which they may want to visit and explore. In the process of exploration, students will discover new things about themselves and the world of work, things they may not otherwise have considered. Thus test results, when properly organized and presented, can serve to widen career horizons as they provide focus for career exploration.

CPP 8-11 materials were specifically designed to assist students with the difficult tasks of identifying and exploring viable career options. First, through a series of "maps" and "charts," *Exploring* provides students with an overview of the worlds of work and education. An "educational road map" is used to show the interrelationships between various types of educational and job preparation programs. Occupations are organized according to "job families" that differ in systematic ways on the Data/Ideas and People/Things Work Task Dimensions (see Part 4). "World of Work Maps" are used to illustrate these differences and to invite student exploration of various job families.

Concurrent with completing several exercises and activities of this type, students take a look at themselves—their interests, values, goals, and abilities—in relation to the worlds of work and education. Self information is related to career information on the CPP 8-11 Student Report through "Exploration Priorities" assigned to selected job families. The Exploration Priorities are intended to suggest starting points for career exploration, and at the same time, to identify career options that students might otherwise have missed.

6. **Reports of test results, particularly in the context of career guidance programs, must help counselors and students "bridge the gap" between test scores and the worlds of work and education.** Because career guidance involves all students, counselors do not have the time required for old-style clinical interpretations of test results. Neither can they reasonably be expected to have the comprehensive and detailed knowledge of tests and the world of work that is required. Thus, some "built-in" procedure for converting test data to counseling information is needed. In the Career Planning Program, this is accomplished by the Exploration Priorities cited above. The suggestions for using the Exploration Priorities and other CPP results appearing on the Student Report, together with the concepts and exercises introduced in *Exploring*, serve to minimize the amount of time required for test interpretation. As a result, counselors have more time for career counseling and for actively involving students in the school's career guidance program.

7. **If information from tests is to have a lasting impact on career development, students must be helped to transform this information into personal experience.** "Experience," as used here, refers both to external experience acquired in active career exploration and to internal experience obtained through self-exploration. Because of the likelihood of experiencing new aspects of the self during career exploration, the former contributes to the latter.

The above principle emphasizes that, to be effective, a testing program cannot stop with a report of test scores. It is essential that students *do something* as a result of participating in a testing program. For this reason, CPP 8-11 materials repeatedly urge students to pursue self/-career exploration actively. The involvement of parents, the school staff, and community resources is encouraged, and concrete suggestions are given in the check lists presented in *Exploring* and on the Student Report. In addition, counselors are provided with a variety of suggestions for meeting their career guidance responsibilities. The "Mini-Course in Career Planning" outlined in Part 3 of this handbook is one example.

The Career Planning Program can help schools respond to many of the career guidance needs of their students. However, only a developmental career guidance program, coupled with the periodic opportunity for counseling, can do the total job. In summary, then, the CPP 8-11 was designed to be more than just another test but less than a career guidance program.

The Career Planning Program in the Context of Guidance Testing

In many ways the Career Planning Program represents a substantial departure from traditional approaches to guidance testing. This is understandable when one considers that construction of the Career Planning Program took place in an era when testing was under heavy fire and when the inadequacies of the "square-peg, square-hole" approach to vocational guidance were widely recognized. No less a guidance-measurement authority than Leo Goldman had stated that the marriage between tests and counseling was a failure (Goldman, 1972). Yet, ACT was convinced that information from tests could play a valuable role in the career planning process. What that role should be and how the information should be presented required careful study, however.

A review of the literature on testing and testing practices provided scant evidence that recent thinking on career development and career decision making was having an impact on guidance testing. While career development theory had sparked a resurgence of interest in career guidance and had provided a new foundation for developing career guidance programs, testing practices appeared to be limping along on the same old personnel-oriented and selection-based model for testing that initially had led to the use of tests in educational and vocational settings. It appeared that, if tests were to play a useful role in career guidance programs of the 70s, a new foundation for guidance testing would be needed—a foundation based on career development and decision theory.

In a chapter in the NVGA decennial volume on vocational guidance, Prediger (1974) reexamined the role of testing in educational and vocational guidance. The implications of career development theory, career decision-making theory, and the recent emphasis on developmental career guidance programs were each considered along with the traditional foundations of testing. The conclusions reached in that paper, which was written concurrently with Career Planning Program development, had a substantial effect on what was done. Many of the CPP 8-11 characteristics and emphases reflect the synthesis of testing, career development theory, and career guidance proposed in the paper.

For these reasons, then, the Career Planning Program represents an attempt to reinterpret the role of tests in career guidance. ACT believes CPP 8-11 users will find that the marriage between tests and counseling has not failed.

PART 2: THE CPP 8-11: WHAT IT IS

An overview of the rationale and general characteristics of the Career Planning Program for grades 8 through 11 (CPP 8-11) was provided in Part 1. As noted there, the Career Planning Program resulted from a reinterpretation of the role of guidance testing in light of career development theory and the new directions being taken in career guidance. Testing was viewed as only one part of a school's career guidance program. Such programs were seen as going far beyond the old "test 'em, tell 'em," "square-peg, square-hole" approach to vocational choice with the best of them using community resources, the classroom, guidance groups, and one-to-one counseling to provide students with information about the world of work, experience (direct and vicarious) with that world, and insight into their potential roles and life styles in that world.

The chief function of testing in the context of a developmental career guidance program was seen as facilitating career exploration and the exploration of self in relation to careers. As described in Part 1, the Career Planning Program was designed to fulfill this function, and in particular, to assist students with the difficult task of identifying and exploring viable career options. In order to accomplish these objectives, the Career Planning Program had to differ substantially from traditional approaches to guidance testing. Emphasis was placed on suggesting "job families" and occupations students might want to explore rather than on attempting to tell students whether their test scores predict success or satisfaction in the occupations they are considering.

Part 2 of the handbook contains a brief overview of CPP 8-11 components, many of them unique in the field of guidance testing, followed by a summary of administrative procedures and considerations. The rationale and content of specific CPP 8-11 components are discussed in Part 4 where a summary of research on CPP 8-11 scales is also presented.

Overview of CPP 8-11 Components

The major CPP 8-11 components are organized below in two categories: assessment components and career guidance components. Following a discussion of these components, the relationship of the Career Planning Program to other ACT guidance assessment programs is described.

Assessment Components

One of the main ways in which the Career Planning Program differs from traditional approaches to guidance assessment is in the breadth of characteristics that are assessed. For the first time, several different types of measures—e.g., interests, abilities, and career-related experiences—have been assembled in one articulated program. Heretofore, these measures were typically covered by separate, uncoordinated tests involving different norm groups, different score reports, different interpretive procedures, and often different purposes and goals.

The comprehensive articulated nature of the CPP 8-11 assessment components reflects ACT's choice of the "wideband approach" to career guidance assessment. As described by Cronbach and Gleser (1957), the wideband approach provides information related to a wide range of concerns, because *many* measures are typically involved. Each measure must be relatively short in order to keep total testing time within reasonable limits. As an alternative to the wideband approach, an equivalent amount of CPP 8-11 testing time could have been concentrated on only one area of assessment, e.g., interests or abilities. Had this been done, a specific area could have been quite thoroughly covered, perhaps, but students and counselors would have been provided with more limited information on which to base self/career exploration.

Wideband measures, it would appear, are especially appropriate for use in developmental career guidance programs. Since developmental guidance is for everyone, and since there are wide differences in the information needs and career planning concerns of different individuals, only wideband measures can provide the variety of information that is needed. As noted above, wideband assessment does involve some sacrifice in the thoroughness and hence, accuracy with which a given characteristic is assessed. But because career planning in a developmental guidance program is based on an *accumulation* of information and experience, specific pieces of information are more likely to be seen from different perspectives and over a period of time. The result can be highly accurate information for areas of major concern. The use of tests to facilitate self/career exploration widens the perspectives from which specific pieces of information are seen and thus supports the wideband approach to assessment. If, on the other hand, tests are used to "help Johnny pick a vocation," quite a different set of considerations is involved. It is hoped that CPP 8-11 measures—or any measures, for that matter—will not be used for this latter purpose.

Career Planning Program assessment components can be classified into two categories, formal components and informal components, as described below.

Formal Assessment Components. These are assessment components which are scored and for which national norms are available. They include:

- **Interest Scales:** The CPP 8-11 Vocational Interest Profile, Form A, organizes a student's *preferences* for a wide variety of career-related activities according to basic dimensions of vocational interests and work tasks. Stanine scores are reported for the following six interest areas:

  Social Service
  Business Contact
  Business Detail

  Technical
  Science
  Creative Arts

- **Experience Scales:** The CPP 8-11 Experience Scales organize a student's career-related *activities and experiences* according to the same basic dimensions reported for the interest scales. Because of the correspondence between these two sets of measures and their adjacent locations on the score report, consideration of interests in light of experiences is encouraged. Student experiences are reported in four verbal categories—none, few, some, many—with the last three categories corresponding to stanines 1-3, 4-6, and 7-9, respectively.

- **Ability Scales:** The six CPP 8-11 Ability Scales assess student abilities which research suggests are needed in many educational and vocational endeavors. Stanine scores are reported for the following types of ability:

  Mechanical Reasoning
  Space Relations
  Clerical Skills

  Numerical Skills
  Reading Skills
  Language Usage

Informal Assessment Components. While national normative distributions are available for all but the last of the CPP 8-11 components in this category, these components differ from the ones listed above in that no scores are provided. Instead, results are reported in the form of student responses to specific questions. The informal assessment components include:

- **Occupational Preferences:** Students record their first and second occupational preferences ("job choices") on the CPP 8-11 answer folder and then, from a list of job families, find the job family appropriate to each preference. Examples of typical jobs are given for each of the 25 job families on the list.

- **Certainty of Occupational Preferences:** In conjunction with the item above, students indicate how sure they are that their first occupational preference will be the same in a year.

- **Educational Plans:** Students report the greatest amount of education they plan to complete by selecting the appropriate response from a list of seven types of education.

Student responses for each of the above components appear on the student score report. Responses for the components listed below are recorded on exercise sheets in *Exploring: You and Your Career*, the CPP 8-11 Booklet 1.

- **Job Values:** Students indicate which of eight job values are most important to them and which are least important. Examples include job security, independence, and pay.

- **Working Condition Preferences:** Four bipolar sets of working conditions are listed; e.g., indoor vs. outdoor work, working with people vs. working alone. For each pair, students select the working condition they prefer.

- **Self-Rated Abilities:** Students rate themselves, as compared to persons of their own age, on 10 types of abilities and related attributes. Examples include artistic ability, mechanical ability, and ability to work with people.

Career Guidance Components

As noted in Part 1 of this handbook, the value of career guidance measures lies not so much in the information that is provided as in what students do as a result of receiving this information. For this reason, the CPP 8-11 career guidance components urge and facilitate active student involvement in career planning. In addition, counselors are provided with suggestions and resources for helping students explore and experience the worlds of work and education.

The career guidance components listed below are an integral part of the Career Planning Program. These components are supported by the guidance-oriented occupational classification system and the exploration priority system described in Part 4 of this handbook. The Data/Ideas and People/Things Work Task Dimensions used to relate student interests to job families are also described in Part 4.

- **Exploring: You and Your Career.** Designed to be a student's guide for self/career exploration and planning, *Exploring* uses a "career journey" motif to introduce students to basic career development concepts and career planning resources. Although *Exploring* is intended for use *prior* to completion of the CPP 8-11 tests and inventories, it can also be distributed in conjunction with the student score reports. Active involvement in career exploration and planning is emphasized through the following check lists and activity guides.

  Ten Steps in Career Planning and Decision Making—an inventory of what students have done and what they still need to do about career planning.

  Educational Road Map—a "map" illustrating various educational avenues to career goals. Students are urged to trace the routes they prefer and to make changes as their plans change. The map is accompanied by general descriptions of various types of educational and job preparation programs.

  World of Work Map for Job Families—a "map" that organizes job families into "regions" of the world of work according to their involvement with data, ideas, people, and things. Students locate the regions corresponding to their current job preferences along with the job families suggested for exploration by their score report. Exploration of job families in nearby regions is encouraged.

  Job Family Charts—charts that list more than 650 occupations according to job family and typical type of formal preparation. Students can use these charts to locate occupations appropriate to their current preferences and to explore job families suggested for priority exploration by their score reports. High school courses related to each job family are also listed in the charts.

  Self/Career Exploration Check List—a check list meant to help students review thoughts and feelings concerning themselves and careers. The check list is completed after students have been through the various CPP 8-11 assessment and guidance components.

  Career Exploration Check List—a check list suggesting a variety of activities which can help students find out what occupations are like.

- **A Mini-Course in Career Planning.** At the option of CPP 8-11 users, *Exploring* can serve as the basis for a nine unit "Mini-Course in Career Planning." Part 3 of this handbook lists objectives of each Mini-Course unit along with references to a wide range of resources that can be used in presenting the unit. The appendices provide annotated descriptions of these and additional career guidance resources organized according to basic areas of career development (e.g., occupational awareness, self-awareness, career planning, and decision making). Also provided are transparency masters for introducing *Exploring* and the student score report, a job family-based filing system for occupational literature, and a list of job families organized according to related high school courses.

- **Student Report.** In more traditional approaches to guidance testing, the CPP 8-11 Student Report would be called a "score report." Indeed, this tradition has been honored in the references appearing above. However, the CPP 8-11 Student Report does much more than report scores, as can be seen in the example on the following pages. Its major features include

  —A figure which encourages students to think of the world of work in terms of job clusters and job families that differ in amount of involvement with data, ideas, people, and things.

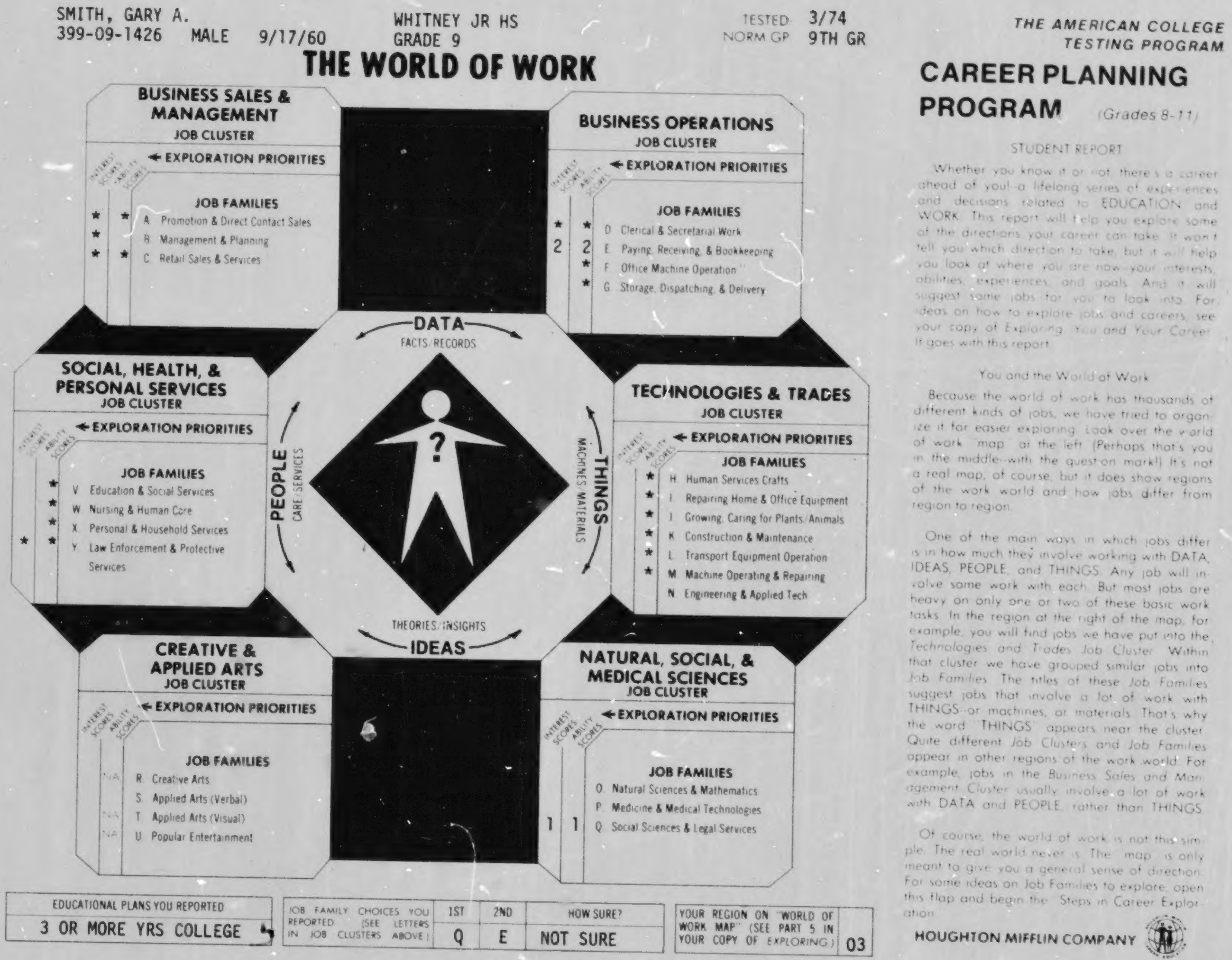
  —"Exploration Priorities" suggesting job families for priority attention in career exploration.

  —Eight steps for career exploration including specific suggestions on how occupations can be explored.

  —A chart showing the basic work tasks typically associated with jobs in each job family.

  —A table showing the interests, experiences, and abilities most relevant to the basic work tasks.

(See Report Form, next page)



SMITH, GARY A.
399-09-1426 MALE 9/17/60

WHITNEY JR HS
GRADE 9

TESTED 3/74
NORM GP 9TH GR

THE WORLD OF WORK

BUSINESS SALES & MANAGEMENT
JOB CLUSTER

INTEREST SCORES	ABILITY SCORES	← EXPLORATION PRIORITIES JOB FAMILIES
★	★	A Promotion & Direct Contact Sales
★		B Management & Planning
★	★	C Retail Sales & Services

BUSINESS OPERATIONS
JOB CLUSTER

INTEREST SCORES	ABILITY SCORES	← EXPLORATION PRIORITIES JOB FAMILIES
★	★	D Clerical & Secretarial Work
2	2	E Paying, Receiving, & Bookkeeping
	★	F Office Machine Operation
	★	G Storage, Dispatching, & Delivery

SOCIAL, HEALTH, & PERSONAL SERVICES
JOB CLUSTER

INTEREST SCORES	ABILITY SCORES	← EXPLORATION PRIORITIES JOB FAMILIES
	★	V Education & Social Services
	★	W Nursing & Human Care
	★	X Personal & Household Services
★	★	Y Law Enforcement & Protective Services

TECHNOLOGIES & TRADES
JOB CLUSTER

INTEREST SCORES	ABILITY SCORES	← EXPLORATION PRIORITIES JOB FAMILIES
	★	H Human Services Crafts
	★	I Repairing Home & Office Equipment
	★	J Growing, Caring for Plants/Animals
	★	K Construction & Maintenance
	★	L Transport Equipment Operation
	★	M Machine Operating & Repairing
		N Engineering & Applied Tech

CREATIVE & APPLIED ARTS
JOB CLUSTER

INTEREST SCORES	ABILITY SCORES	← EXPLORATION PRIORITIES JOB FAMILIES
NA		R Creative Arts
		S Applied Arts (Verbal)
NA		T Applied Arts (Visual)
NA		U Popular Entertainment

NATURAL, SOCIAL, & MEDICAL SCIENCES
JOB CLUSTER

INTEREST SCORES	ABILITY SCORES	← EXPLORATION PRIORITIES JOB FAMILIES
		O Natural Sciences & Mathematics
		P Medicine & Medical Technologies
1	1	Q Social Sciences & Legal Services

EDUCATIONAL PLANS YOU REPORTED
3 OR MORE YRS COLLEGE

JOB FAMILY CHOICES YOU REPORTED (SEE LETTERS IN JOB CLUSTERS ABOVE)	1ST	2ND	HOW SURE?
	Q	E	NOT SURE

YOUR REGION ON "WORLD OF WORK MAP" (SEE PART 5 IN YOUR COPY OF EXPLORING)	03

THE AMERICAN COLLEGE TESTING PROGRAM

CAREER PLANNING PROGRAM *(Grades 8-11)*

STUDENT REPORT

Whether you know it or not, there's a career ahead of you!--a lifelong series of experiences and decisions related to EDUCATION and WORK. This report will help you explore some of the directions your career can take. It won't tell you which direction to take, but it will help you look at where you are now--your interests, abilities, experiences, and goals. And it will suggest some jobs for you to look into. For ideas on how to explore jobs and careers, see your copy of *Exploring: You and Your Career*. It goes with this report.

You and the World of Work

Because the world of work has thousands of different kinds of jobs, we have tried to organize it for easier exploring. Look over the "world of work" map at the left. (Perhaps that's you in the middle--with the question mark!) It's not a real map, of course, but it does show regions of the work world and how jobs differ from region to region.

One of the main ways in which jobs differ is in how much they involve working with DATA, IDEAS, PEOPLE, and THINGS. Any job will involve some work with each. But most jobs are heavy on only one or two of these basic work tasks. In the region at the right of the map, for example, you will find jobs we have put into the *Technologies and Trades Job Cluster*. Within that cluster we have grouped similar jobs into *Job Families*. The titles of these *Job Families* suggest jobs that involve a lot of work with THINGS--or machines, or materials. That's why the word "THINGS" appears near the cluster. Quite different *Job Clusters* and *Job Families* appear in other regions of the work world. For example, jobs in the *Business Sales and Management Cluster* usually involve a lot of work with DATA and PEOPLE, rather than THINGS.

Of course, the world of work is not this simple. The real world never is. The "map" is only meant to give you a general sense of direction. For some ideas on Job Families to explore, open this flap and begin the "Steps in Career Exploration."

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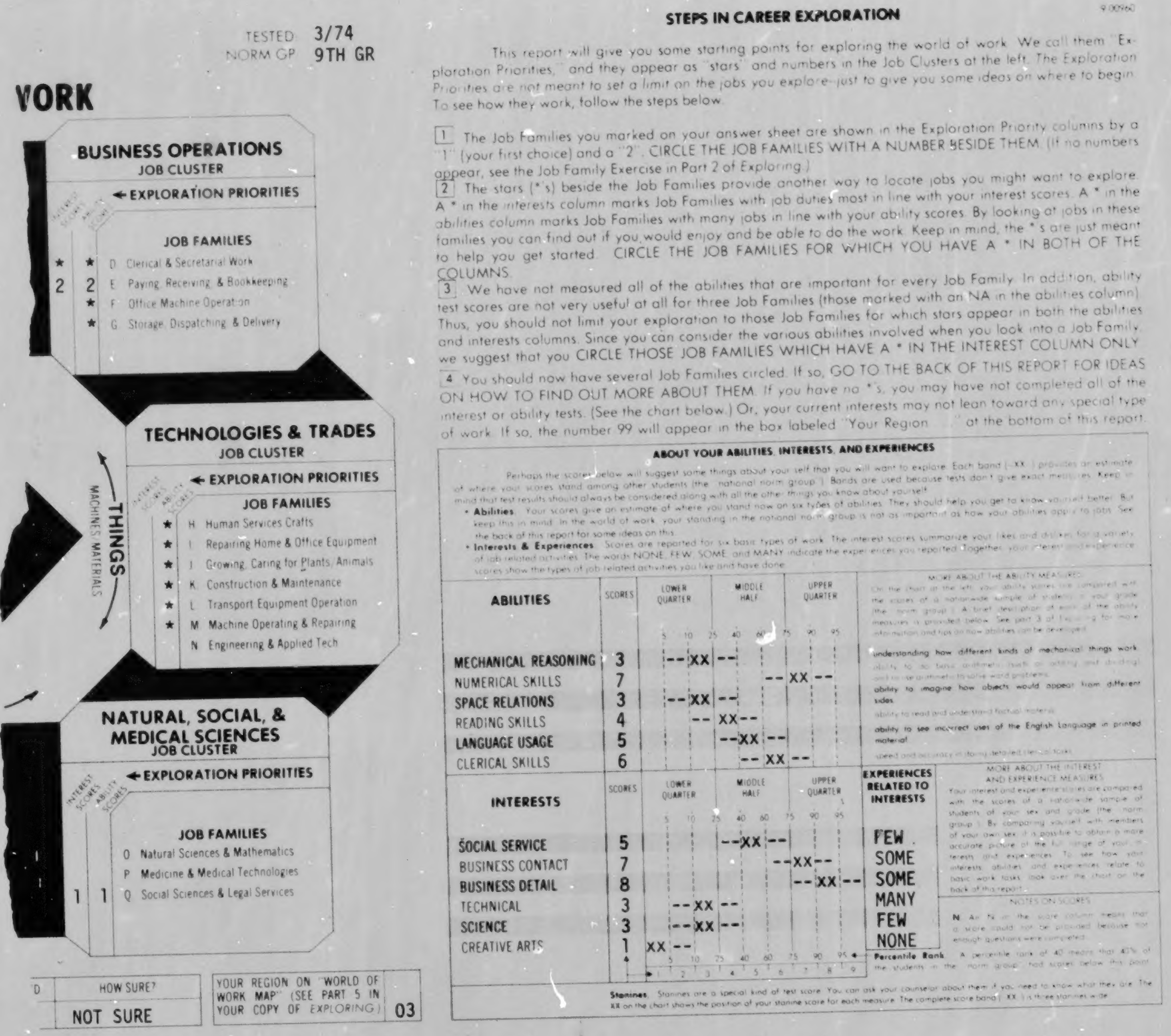
Fig. 2.1. CPP 8-11 Student Report (Front Side with Flap Closed)



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VORK

BUSINESS OPERATIONS
JOB CLUSTER
← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
★	★	D Clerical & Secretarial Work
2	2	E Paying, Receiving, & Bookkeeping
	★	F Office Machine Operation
	★	G Storage, Dispatching, & Delivery

TECHNOLOGIES & TRADES
JOB CLUSTER
← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
	★	H Human Services Crafts
	★	I Repairing Home & Office Equipment
	★	J Growing, Caring for Plants/Animals
	★	K Construction & Maintenance
	★	L Transport Equipment Operation
	★	M Machine Operating & Repairing
		N Engineering & Applied Tech

NATURAL, SOCIAL, & MEDICAL SCIENCES
JOB CLUSTER
← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
		O Natural Sciences & Mathematics
		P Medicine & Medical Technologies
1	1	Q Social Sciences & Legal Services

D	HOW SURE?
	NOT SURE

YOUR REGION ON "WORLD OF WORK MAP" (SEE PART 5 IN YOUR COPY OF EXPLORING)	03

STEPS IN CAREER EXPLORATION

This report will give you some starting points for exploring the world of work. We call them "Exploration Priorities," and they appear as "stars" and numbers in the Job Clusters at the left. The Exploration Priorities are not meant to set a limit on the jobs you explore—just to give you some ideas on where to begin. To see how they work, follow the steps below.

1 The Job Families you marked on your answer sheet are shown in the Exploration Priority columns by a "1" (your first choice) and a "2". CIRCLE THE JOB FAMILIES WITH A NUMBER BESIDE THEM. (If no numbers appear, see the Job Family Exercise in Part 2 of Exploring.)

2 The stars (*'s) beside the Job Families provide another way to locate jobs you might want to explore. A * in the interests column marks Job Families with job duties most in line with your interest scores. A * in the abilities column marks Job Families with many jobs in line with your ability scores. By looking at jobs in these families you can find out if you would enjoy and be able to do the work. Keep in mind, the *'s are just meant to help you get started. CIRCLE THE JOB FAMILIES FOR WHICH YOU HAVE A * IN BOTH OF THE COLUMNS.

3 We have not measured all of the abilities that are important for every Job Family. In addition, ability test scores are not very useful at all for three Job Families (those marked with an NA in the abilities column). Thus, you should not limit your exploration to those Job Families for which stars appear in both the abilities and interests columns. Since you can consider the various abilities involved when you look into a Job Family, we suggest that you CIRCLE THOSE JOB FAMILIES WHICH HAVE A * IN THE INTEREST COLUMN ONLY.

4 You should now have several Job Families circled. If so, GO TO THE BACK OF THIS REPORT FOR IDEAS ON HOW TO FIND OUT MORE ABOUT THEM. If you have no *'s, you may have not completed all of the interest or ability tests. (See the chart below.) Or, your current interests may not lean toward any special type of work. If so, the number 99 will appear in the box labeled "Your Region ..." at the bottom of this report.

ABOUT YOUR ABILITIES, INTERESTS, AND EXPERIENCES

Perhaps the scores below will suggest some things about yourself that you will want to explore. Each band (--XX--) provides an estimate of where your scores stand among other students (the "national norm group"). Bands are used because tests don't give exact measures. Keep in mind that test results should always be considered along with all the other things you know about yourself.

- **Abilities.** Your scores give an estimate of where you stand now on six types of abilities. They should help you get to know yourself better. But keep this in mind: In the world of work, your standing in the national norm group is not as important as how your abilities apply to jobs. See the back of this report for some ideas on this.
- **Interests & Experiences.** Scores are reported for six basic types of work. The interest scores summarize your likes and dislikes for a variety of job related activities. The words NONE, FEW, SOME and MANY indicate the experiences you reported. Together, your interest and experience scores show the types of job related activities you like and have done.

ABILITIES	SCORES	LOWER QUARTER 5 10	MIDDLE HALF 25 40 60	UPPER QUARTER 75 90 95
MECHANICAL REASONING	3	--XX	--	
NUMERICAL SKILLS	7		--	XX --
SPACE RELATIONS	3	--XX	--	
READING SKILLS	4	--	XX--	
LANGUAGE USAGE	5		--XX--	
CLERICAL SKILLS	6		-- XX	--

MORE ABOUT THE ABILITY MEASURES

On the chart at the left, your ability scores are compared with the scores of a nationwide sample of students in your grade (the "norm group"). A brief description of each of the ability measures is provided below. See part 3 of Exploring for more information and tips on how abilities can be developed.

understanding how different kinds of mechanical things work

ability to do basic arithmetic (such as adding and dividing) and to use arithmetic to solve word problems

ability to imagine how objects would appear from different sides

ability to read and understand factual material

ability to see incorrect uses of the English Language in printed material

speed and accuracy in doing detailed clerical tasks

INTERESTS	SCORES	LOWER QUARTER 5 10	MIDDLE HALF 25 40 60	UPPER QUARTER 75 90 95	EXPERIENCES RELATED TO INTERESTS
SOCIAL SERVICE	5		--XX--		FEW
BUSINESS CONTACT	7		--	XX--	SOME
BUSINESS DETAIL	8			--XX--	SOME
TECHNICAL	3	--XX	--		MANY
SCIENCE	3	--XX	--		FEW
CREATIVE ARTS	1	XX --			NONE
		5 10	25 40 60	75 90 95 ← Percentile Rank	
		→ 1 2 3	4 5 6	7 8 9	

MORE ABOUT THE INTEREST AND EXPERIENCE MEASURES

Your interest and experience scores are compared with the scores of a nationwide sample of students of your sex and grade (the "norm group"). By comparing yourself with members of your own sex it is possible to obtain a more accurate picture of the full range of your interests and experiences. To see how your interests, abilities, and experiences relate to basic work tasks, look over the chart on the back of this report.

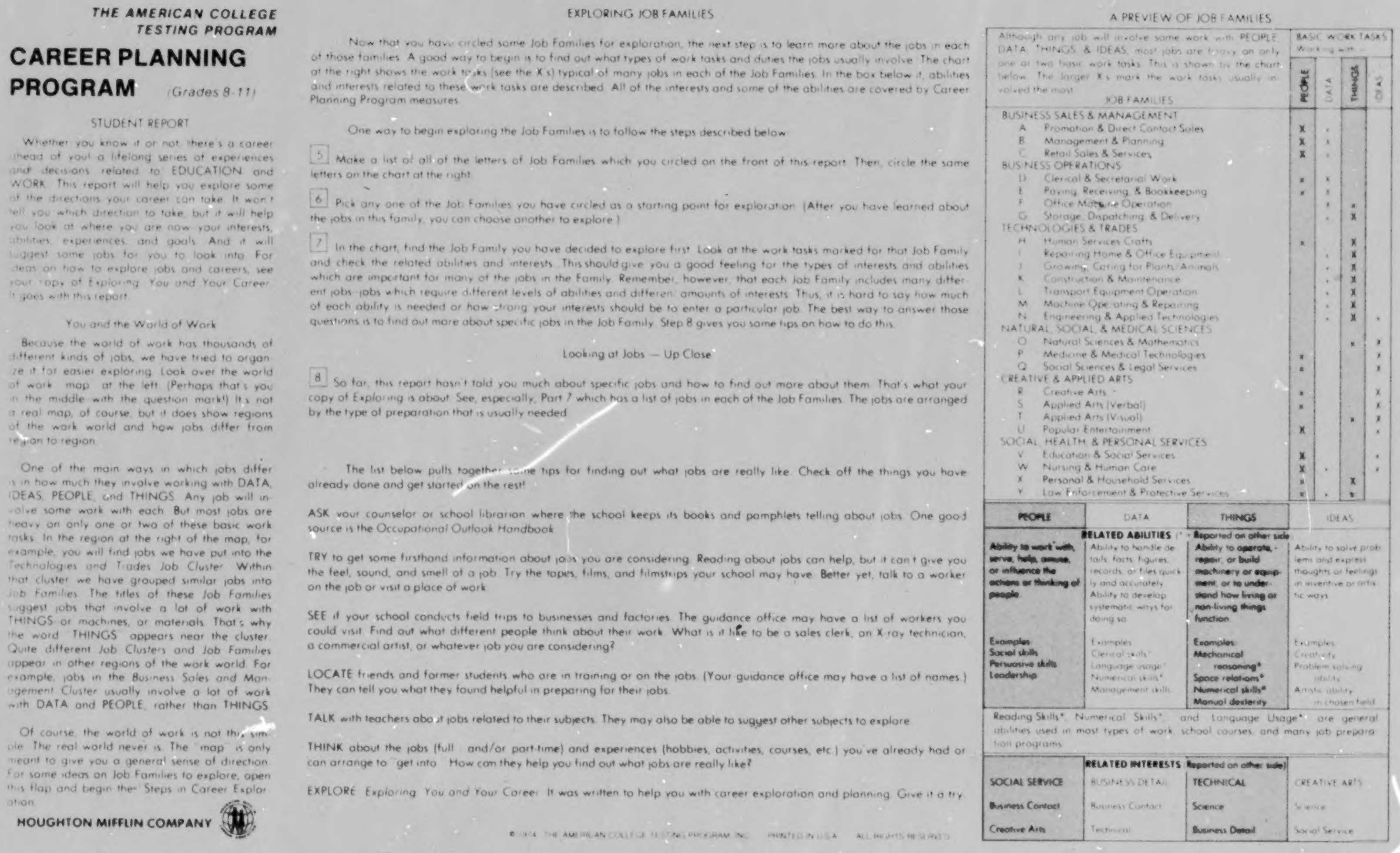
NOTES ON SCORES

N An NA in the score column means that a score could not be provided because not enough questions were completed.

Percentile Rank. A percentile rank of 40 means that 40% of the students in the "norm group" had scores below this point.

Stanines. Stanines are a special kind of test score. You can ask your counselor about them if you need to know what they are. The XX on the chart shows the position of your stanine score for each measure. The complete score band (--XX--) is three stanines wide.

Fig. 2.2. CPP 8-11 Student Report (Front Side with Flap Open)



THE AMERICAN COLLEGE TESTING PROGRAM

CAREER PLANNING PROGRAM *(Grades 8-11)*

STUDENT REPORT

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EXPLORING JOB FAMILIES

Now that you have circled some Job Families for exploration, the next step is to learn more about the jobs in each of those families. A good way to begin is to find out what types of work tasks and duties the jobs usually involve. The chart at the right shows the work tasks (see the X's) typical of many jobs in each of the Job Families. In the box below it, abilities and interests related to these work tasks are described. All of the interests and some of the abilities are covered by Career Planning Program measures.

One way to begin exploring the Job Families is to follow the steps described below.

5 Make a list of all of the letters of Job Families which you circled on the front of this report. Then, circle the same letters on the chart at the right.

6 Pick any one of the Job Families you have circled as a starting point for exploration. (After you have learned about the jobs in this family, you can choose another to explore.)

7 In the chart, find the Job Family you have decided to explore first. Look at the work tasks marked for that Job Family and check the related abilities and interests. This should give you a good feeling for the types of interests and abilities which are important for many of the jobs in the Family. Remember, however, that each Job Family includes many different jobs—jobs which require different levels of abilities and different amounts of interests. Thus, it is hard to say how much of each ability is needed or how strong your interests should be to enter a particular job. The best way to answer those questions is to find out more about specific jobs in the Job Family. Step 8 gives you some tips on how to do this.

Looking at Jobs — Up Close

8 So far, this report hasn't told you much about specific jobs and how to find out more about them. That's what your copy of *Exploring* is about. See, especially, Part 7 which has a list of jobs in each of the Job Families. The jobs are arranged by the type of preparation that is usually needed.

The list below pulls together some tips for finding out what jobs are really like. Check off the things you have already done and get started on the rest!

ASK your counselor or school librarian where the school keeps its books and pamphlets telling about jobs. One good source is the *Occupational Outlook Handbook*.

TRY to get some firsthand information about jobs you are considering. Reading about jobs can help, but it can't give you the feel, sound, and smell of a job. Try the tapes, films, and filmstrips your school may have. Better yet, talk to a worker on the job or visit a place of work.

SEE if your school conducts field trips to businesses and factories. The guidance office may have a list of workers you could visit. Find out what different people think about their work. What is it like to be a sales clerk, an X-ray technician, a commercial artist, or whatever job you are considering?

LOCATE friends and former students who are in training or on the jobs. (Your guidance office may have a list of names.) They can tell you what they found helpful in preparing for their jobs.

TALK with teachers about jobs related to their subjects. They may also be able to suggest other subjects to explore.

THINK about the jobs (full- and/or part-time) and experiences (hobbies, activities, courses, etc.) you've already had or can arrange to "get into." How can they help you find out what jobs are really like?

EXPLORE *Exploring: You and Your Career*. It was written to help you with career exploration and planning. Give it a try.

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A PREVIEW OF JOB FAMILIES

Although any job will involve some work with PEOPLE, DATA, THINGS, & IDEAS, most jobs are heavy on only one or two basic work tasks. This is shown by the chart below. The larger X's mark the work tasks usually involved the most. JOB FAMILIES	BASIC WORK TASKS Working with —			
	PEOPLE	DATA	THINGS	IDEAS
BUSINESS SALES & MANAGEMENT				
A Promotion & Direct Contact Sales	X	x		
B Management & Planning	X	x		
C Retail Sales & Services	X	x		
BUSINESS OPERATIONS				
D Clerical & Secretarial Work	x	X		
E Paying, Receiving, & Bookkeeping	x	X		
F Office Machine Operation		X	x	
G Storage, Dispatching, & Delivery		x	X	
TECHNOLOGIES & TRADES				
H Human Services Crafts	x		X	
I Repairing Home & Office Equipment		x	X	
J Growing, Caring for Plants/Animals		x	X	
K Construction & Maintenance		x	X	
L Transport Equipment Operation		x	X	
M Machine Operating & Repairing		x	X	
N Engineering & Applied Technologies		x	X	x
NATURAL, SOCIAL, & MEDICAL SCIENCES				
O Natural Sciences & Mathematics			x	X
P Medicine & Medical Technologies	x			X
Q Social Sciences & Legal Services	x			X
CREATIVE & APPLIED ARTS				
R Creative Arts	x			X
S Applied Arts (Verbal)	x			X
T Applied Arts (Visual)	x		x	X
U Popular Entertainment	X			x
SOCIAL, HEALTH, & PERSONAL SERVICES				
V Education & Social Services	X			x
W Nursing & Human Care	X	x		x
X Personal & Household Services	x		X	
Y Law Enforcement & Protective Services	x	x	x	

PEOPLE	DATA	**THINGS**	IDEAS
RELATED ABILITIES (* = Reported on other side)			
Ability to work with, serve, help, amuse, or influence the actions or thinking of people.	Ability to handle details, facts, figures, records, or files quickly and accurately. Ability to develop systematic ways for doing so.	**Ability to operate, repair, or build machinery or equipment, or to understand how living or non-living things function.**	Ability to solve problems and express thoughts or feelings in inventive or artistic ways.
Examples: **Social skills** **Persuasive skills** **Leadership**	Examples: Clerical skills* Language usage* Numerical skills* Management skills	**Examples:** **Mechanical reasoning*** **Space relations*** **Numerical skills*** **Manual dexterity**	Examples: Creativity Problem solving ability Artistic ability in chosen field
Reading Skills*, Numerical Skills*, and Language Usage* are general abilities used in most types of work, school courses, and many job preparation programs.			
RELATED INTERESTS (Reported on other side)			
SOCIAL SERVICE	BUSINESS DETAIL	**TECHNICAL**	CREATIVE ARTS
Business Contact	Business Contact	**Science**	Science
Creative Arts	Technical	**Business Detail**	Social Service

Fig. 2.3. CPP 8-11 Student Report (Back Side)

Relationship to Other ACT Guidance Assessment Programs

The Career Planning Program for grades 8 through 11 is one of four interrelated programs ACT has developed to assist students with career planning and decision making. The other three programs are:

- The Assessment of Career Development
- The Career Planning Program, Grades 12-13
- The ACT Assessment Program (the "ACT")

Each of these four programs was designed to serve different types of career guidance needs.

The Assessment of Career Development (ACD), intended for use in grades 8-11, helps counselors obtain information needed to tailor guidance programs to student needs. ACD results are reported in terms of what students say, know, and have done about their career development. The following core components of career development are assessed: *occupational awareness* including occupational knowledge and exploratory occupational experiences; *self-awareness* including job values and preferences, career plans, and perceived needs for help with career planning; and *career planning and decision making* including career planning knowledge and involvement in career planning activities. In addition, student reactions to career guidance experiences are obtained and up to 19 local option items can be included.

ACD group summary reports help counselors assess the development of their students in the above areas. Student list reports help counselors identify students who are in need of special attention. Students profit from the ACD as the school's career guidance program is revised to better meet their needs.

As already noted, the Career Planning Program for grades 8 through 11 is a comprehensive program designed to meet the needs of *all* students. However, at the point of transition between high school and post-high school endeavors, career planning needs become more specific. Testing programs which seek to meet the information needs of students at this more "advanced" stage of career development must focus on these more specific needs. Accordingly, ACT has developed two programs to serve students facing the high school to post-high school transition. The *ACT Assessment Program*, most familiar to school counselors, is designed to provide the information needed by students planning academic programs in 2-year and 4-year colleges. Recent additions to the "ACT" reports for students include descriptions of key characteristics of the colleges they are considering, forecasts of course performance at these colleges, and suggestions of college majors that appear to be appropriate to the students' career interests. The interest inventory used in the "ACT" covers the same six areas of interest covered by the CPP 8-11 inventory.

The *Career Planning Program for grades 12 and 13* (CPP 12-13), on the other hand, is designed to serve the needs of students who plan to pursue vocational, technical, or transfer programs in community colleges and vocational/technical institutes, or who plan to enter the world of work immediately after leaving high school. Undecided students are also best served by the CPP 12-13. The CPP 12-13 provides empirically-based exploration priorities and performance estimates for more than 20 vocational, technical, and transfer programs. At a broader career planning level, the CPP 12-13 provides information on the relation of student characteristics to the world of work as a whole.

Together, these four guidance assessment programs meet many of the information needs of American youth as they seek to master the career development tasks set by society. For further information about the Assessment of Career Development, contact the Houghton Mifflin regional office serving your school. Information on the ACT Assessment Program and the CPP 12-13 may be obtained by writing directly to the Publications Division of ACT.

Administration and Scoring

The CPP 8-11 is intended for administration and interpretation by professional educators who have met the state certification requirements for their positions. This would include counselors, teachers, and school principals. Anyone using the CPP 8-11 should be thoroughly familiar with this handbook and the accompanying publication entitled *CPP 8-11 Supervisor's Manual of Instructions*. The following is a complete list of materials currently associated with the CPP 8-11 program:

1. *Handbook for the ACT Career Planning Program, Grades 8-11*
2. *CPP 8-11 Supervisor's Manual of Instructions*
3. *Booklet 1: Exploring: You and Your Career*
4. *Booklet 2: Ability Measures*
5. Answer Folder
6. CPP 8-11 Student Report Form
7. Identification sheets used in shipping and processing answer folders

8. An order form for the Houghton Mifflin Scoring Service
9. A Packing and Shipping Instruction Sheet
10. A pre-addressed mailing envelope

Overview of Administrative and Scoring Procedures

Ideally, the individual assessment measures of the CPP 8-11 should be administered as part of the Mini-Course in Career Planning (see Part 3 of the handbook) after completion of the fourth unit. This procedure introduces students to the purposes of the CPP 8-11 assessment components (as explained in *Exploring*) and to the system of job families used in test unit 2 (Career Plans), before they complete the instrument. Basic ideas concerning career development, career decision making, and self/career exploration are also introduced. When this procedure is followed, the remaining Mini-Course units can be presented as the answer folders are being processed, thus reducing the amount of time between completion of the Mini-Course and the return of Student Reports containing CPP 8-11 results.

If the complete Mini-Course cannot be used in a given situation, schools are strongly urged to use the Set One Visuals in Appendix G and pages 8-13 of Booklet 1 as orientation for students before the actual testing. This will provide students with an overview of the CPP 8-11 components and encourage prior thinking about job family preferences appearing in the second test unit. The Set Two Visuals in Appendix G can be used to introduce students to their results on the Student Reports.

The CPP 8-11 was designed to allow schools maximum flexibility in arranging and scheduling the test administration. There are several options for administration, the details of which are provided in the *CPP 8-11 Supervisor's Manual of Instructions*. An overview of these options appears below.

Administrative Options for Inventories in Booklet 1—Exploring: You and Your Career

There are three suggested administrative options for the test units (inventories) appearing in pages 35-39 of Booklet 1. These units should always be given *before* the ability measure units in Booklet 2.

The first administrative option is an informal model. Booklet 1, while readily usable in standard test administration sessions, is also designed for use with informal guidance groups or career guidance units in regular school courses. Because the measures in Booklet 1 are untimed and have no right or wrong answers, CPP 8-11 users can administer the three units in this booklet when time is available and when students are ready. Pages 8-13 in Booklet 1 will help develop readiness. Although the administration schedule can be informal, supervision *must* be provided to set the proper tone for the tasks and to help with gridding responses on the answer folder. For specifics, refer to the *CPP 8-11 Supervisor's Manual of Instructions*.

The remaining two administrative options for Booklet 1 are presented in Table 2.1. The two-session model should be especially attractive to schools with 40-minute periods.

TABLE 2.1

Administrative Options for Booklet 1

		Approximate time required[a]
A. *One Session Model*		
Adm.:	Distribution/Collection of materials, gridding name, grade, etc.	15
Unit 1:	Exploratory Job Experiences	20
Unit 2:	Career Plans	10
Unit 3:	Vocational Interest Profile	15
		60 minutes
B. *Two Session Model*		
	Session 1	
Adm.:	Distribution/Collection of materials, gridding name, grade, etc.	15
Unit 1:	Exploratory Job Experiences	20
		35 minutes
	Session 2	
Adm.:	Distribution/Collection of material[b]	5
Unit 2:	Career Plans	10
Unit 3:	Vocational Interest Profile	15
		30 minutes

[a] All units in Booklet 1 are untimed.

[b] No time is required for gridding in name, etc., on answer folder as this is done in Session 1.

Administrative Options for Booklet 2—Ability Measures

The three suggested administrative options for Booklet 2 are presented in Table 2.2. The directions in the *Supervisor's Manual* can be adapted to each of these models. The six ability measures contained in Booklet 2 should be administered in the usual, controlled testing situation.

TABLE 2.2

Administrative Options for Booklet 2

A. *One Session Model*

		Time limit[b]
Adm.:	Distribution/Collection of materials[a]	5
	Cumulative direction time	13
Unit 4:	Reading Skills	20 (2)
Unit 5:	Language Usage	8 (3)
Unit 6:	Clerical Skills	6 (3)
Unit 7:	Space Relations	11 (3)
Unit 8:	Numerical Skills	15 (1)
Unit 9:	Mechanical Reasoning	13 (1)
		91 minutes

B. *Two Session Model*

		Time limit[b]
	Session 1	
Adm.:	Distribution/Collection of materials[a]	5
	Cumulative direction time	8
Unit 4:	Reading Skills	20 (2)
Unit 5:	Language Usage	8 (3)
Unit 6:	Clerical Skills	6 (3)
		47 minutes
	Session 2	
Adm.:	Distribution/Collection of materials[a]	5
	Cumulative direction time	5
Unit 7:	Space Relations	11 (3)
Unit 8:	Numerical Skills	15 (1)
Unit 9:	Mechanical Reasoning	13 (1)
		49 minutes

C. *Three Session Model*

		Time limit[b]
	Session 1	
Adm.:	Distribution/Collection of materials[a]	5
	Cumulative direction time	5
Unit 4:	Reading Skills	20 (2)
Unit 5:	Language Usage	8 (3)
		38 minutes
	Session 2	
Adm.:	Distribution/Collection of materials[a]	5
	Cumulative direction time	6
Unit 6:	Clerical Skills	6 (3)
Unit 7:	Space Relations	11 (3)
		28 minutes
	Session 3	
Adm.:	Distribution/Collection of materials[a]	5
	Cumulative direction time	2
Unit 8:	Numerical Skills	15 (1)
Unit 9:	Mechanical Reasoning	13 (1)
		35 minutes

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[a] No time is required for gridding in name, etc., on answer folder as this is done in Booklet 1 administration.

[b] Approximate time required for test directions is shown in parentheses for each test. The cumulative direction time represents the sum of the direction time for each test in the session.

Option for Administering Booklets 1 and 2, Combined

The comprehensive model for administering both Booklet 1 and Booklet 2 is presented in Table 2.3.

Scoring and Reporting Services

Scoring and reporting of CPP 8-11 answer folders is accomplished by the Houghton Mifflin Scoring Service (HMSS). Completed answer folders should be sent to HMSS as soon as possible after testing. Instructions for organizing, packing, and shipping the answer folders are contained in the *CPP 8-11 Supervisor's Manual of Instructions*. CPP 8-11 Student Reports will normally be mailed to users 2 to 3 weeks after receipt by HMSS. As part of the CPP 8-11 scoring service, participating schools will receive two copies of each Student Report. The elaborate computer programs required to process the results and generate these reports prohibit local scoring of the CPP 8-11.

National Norms and Score Scales

CPP 8-11 norms are based upon a nationwide sample of some 32,000 students in 200 schools selected according to region of the country, size and socioeconomic status of community, and size of school. A description of norming procedures is provided in Part 4 of this handbook. National norm distributions are reported in Appendix F for the following CPP 8-11 assessment components: Occupational Preferences, Certainty of Occupational Preferences, Educational Plans, Job Values, Working Condition Preferences, Vocational Interest Profile Scales, Experience Scales, and Ability Scales. The norm distributions for the first five of these components report student responses to specific questions. However, special reporting procedures are used with the latter three sets of scales. Scores on the interest and ability scales are converted into stanine scores in the norms tables and on the Student Report. The meaning of these scores is described on the next page.

TABLE 2.3

Comprehensive Four-Session Administration Model Including All CPP 8-11 Measures

	Session 1, Booklet 1	Time required[c]
Adm.:	Distribution/Collection of materials, gridding name, grade, etc.	15 (untimed, approximate)
Unit 1:	Exploratory Job Experiences	20 (untimed, approximate)
Unit 2:	Career Plans	10 (untimed, approximate)
		45 minutes
	Session 2, Booklets 1 & 2	
Adm.:	Distribution/Collection[a]	8[b]
	Cumulative direction time	2
Unit 3:	Vocational Interest Profile	15 (untimed, approximate)
	Booklet 2	
Unit 4:	Reading Skills	20 (2)
		45 minutes
	Session 3, Booklet 2	
Adm.:	Distribution/Collection[a]	5
	Cumulative direction time	9
Unit 5:	Language Usage	8 (3)
Unit 6:	Clerical Skills	6 (3)
Unit 7:	Space Relations	11 (3)
		39 minutes
	Session 4, Booklet 2	
Adm.:	Distribution/Collection[a]	5
	Cumulative direction time	2
Unit 8:	Numerical Skills	15 (1)
Unit 9:	Mechanical Reasoning	13 (1)
		35 minutes

[a] No time is required for gridding in name, etc., on answer folder as this is done in Session 1 administration.

[b] Reflects additional time required for administrative overhead as this session includes units from *both* Booklet 1 and Booklet 2.

[c] Approximate time required for test directions is shown in parentheses for each test. The cumulative direction time represents the sum of the direction times for each test in the session.

Ability and Interest Stanines. The stanine scale is a nine-point (1-9) score scale of approximately equal score units. Hence, the stanine scale for a measure can be thought of as representing nine equal steps of ability or interest beginning at level 1, the lowest level, and increasing by steps of one to level 9. The middle step, stanine 5, represents average performance for the norm group. Stanines are especially useful in reports of test scores because they encourage students to think of scores as ranges or bands rather than as exact, precise points. At the same time, students are discouraged from attempting to attribute significance to small differences in performance from one measure to another. The broad categories represented by stanines, then, more nearly represent the actual accuracy of discriminations which can be made by means of psychological measures.

On the CPP 8-11 Student Report, stanine scores are listed for each of the ability and interest scales. In addition, results for these scales are profiled in bands that are three stanines wide, making it very likely that a student's true standing on a measure will be included by the band. The stanine bands also enable students to see *differences* in performance from one measure to another in proper perspective. When there is no overlap between the stanine bands for two measures, the profile differences very probably reflect real differences in ability or interest level. When there is partial overlap, the interpretation of the differences is less certain. And, of course, when bands overlap completely, there is no reason to believe that ability or interest levels differ for the measures being compared.

As shown in Table 2.4, there are certain convenient relationships between the stanine scale and the percentile rank scale. Percentile ranks associated with each stanine score interval are listed along with approximate percentile ranks and associated verbal descriptions. Although the CPP 8-11 stanine scales were based on the exact percentile ranks, the approximate percentile ranks can be used in interpreting relative standing, for all practical purposes. Hence, these values appear on the ability and interest profiles on the Student Report. The verbal descriptions represent yet another way to interpret stanine scores.

Experience Scale Verbal Labels. Verbal labels rather than stanines are used to report performance on the CPP 8-11 Experience Scales. These labels—none, few, some, and many—describe the relative number of experiences reported by a student as compared with students in the norm group.

The verbal labels were used to report results for the Experience Scales chiefly to conserve space on the Student Report. However, the labels also facilitate student reflection on the relationship between experiences and interests and, by their nature, suggest to students that they can increase their level of experiences, if desired.

As shown in the Experience Scale norms in Appendix F, stanines were used as intermediate values in transforming Experience Scale scores to the verbal labels. The label "many" corresponds to stanines 7-9, "some" to 4-6, and "few" to 1-3. Students indicating no experiences in a given area were assigned the label "none." Reference to Table 2.4 will show that "many," "some," and "few" correspond to the upper quarter, middle half, and lower quarter, respectively, of the national norms distribution. The label "none," of course, shares the lower quarter with "few."

TABLE 2.4

Stanine Scores and Associated Percentile Ranks

Stanine score interval	Percentile rank	Approx. percentile rank	Verbal description	Stanine score interval
9			upper 5%	9
	96	95		
8			upper 10%	8
	89	90		
7			upper quarter	7
	77	75		
6			Middle half	6
	60	60		
5			middle 5th	5
	40	40		
4				4
	23	25		
3			lower quarter	3
	11	10		
2			lower 10%	2
	4	5		
1			lower 5%	1

Note.—The percentile ranks are associated with the upper limits of the stanine score intervals.

As already noted, the Career Planning Program for grades 8 through 11 was designed to help students beginning the process of self/career exploration. The wide range in readiness for career exploration among students in these grades is also accompanied by a wide range in reading skills. Thus, it is important to consider the readability of the CPP 8-11 assessment units in light of the reading skills of the participants.

Factors Related to Readability

The reading level calculated for any kind of written material cannot be thought of as an absolute value. At best, it is only a probability statement (Blair, 1971). For example, an 8th grade reading level for a test or textbook does not mean that all 8th graders can easily read the material. It simply indicates that most typical 8th graders will *probably* have little difficulty understanding the material.

Furthermore, there are a number of unmeasureable factors that must be taken into account when considering readability. A student's interest, motivation, and previous experience with a topic will have a significant effect on his/her understanding of material related to the topic. While most 8th graders would have little difficulty with typical 8th grade reading material, some uninterested and unmotivated 9th and 10th graders may have great difficulty with the same material. At the same time, typical 8th graders may have little difficulty with 10th grade material if they have had previous experience with it (e.g., through a hobby, special class project, part-time job).

From the above discussion, it is evident that individuals read at different levels under different circumstances. While it can be readily seen that a person can read material at a level lower than his own estimated reading level, it should not be assumed that he *cannot* read material above that level. Most people *can* (Klare, 1963).

In addition to reading level, two other crucial and very practical factors related to the readability of any test should be considered. They are the *amount* of reading involved and the "social maturity" of the language used in the reading passages. "Social maturity" in this context refers to appropriateness of the language to a given age group. For example, adults who are poor readers may be given Dick and Jane instructional materials or materials at the same reading level *but* with content appropriate to the interests and experiences of adults. These latter materials would probably be inappropriate for use with 8- and 9-year-olds. Because of the wide range in "social maturity" of preadolescents and adolescents, it is difficult to construct a test with reading material appropriate for all members of these groups.

All of this suggests that two tests may have approximately the same reading level but that one may require much more reading than the other or may assume a different social maturity level. Thus, reading level should be considered in conjunction with amount of reading and the social maturity assumed by the reading passages when one evaluates the appropriateness of any test for a given group.

Special care was taken to determine the reading level of the various units in the Career Planning Program. Unfortunately, there is no highly accurate procedure for estimating reading level. According to two widely accepted methods, the Forbes Readability Formula (Forbes & Cottle, 1953) and the Dale-Chall Index (Dale & Chall, 1948), the average reading grade level for the nine assessment units designed for use in grades 8-10 was 7.4. For grade 11, the Reading Skills and Numerical Skills items were made more difficult, with a resulting average reading grade level of 7.6. Both results are well below the grade range for which the CPP 8-11 measures were developed.

Using the CPP 8-11 with Poor Readers

Several alternative procedures for administering the three untimed units in Booklet 1 might be employed with poor readers. For example, items might be read aloud by the test administrator, or individual assistance might be provided to students who indicate difficulty with specific words. These variations in the standard testing procedures should have little effect on student scores as long as the test administrator is careful to treat each item or question in a neutral manner. Hence, these alternatives may be more desirable than withholding the entire CPP 8-11 experience from students who have reading difficulties.

Variations in the standard administration of the six ability tests in Booklet 2 do not appear to be necessary or appropriate even for poor readers, however. As explained in the *CPP 8-11 Supervisor's Manual of Instructions*, the directions for all CPP 8-11 test units are to be read aloud to students. In four of the six ability units, the items themselves require little or no reading. The nature of the content in the remaining two units, Reading Skills and Language Usage, suggests that they should be administered to all students in the same standard way. Thus, the standard testing procedures recommended in the *Supervisor's Manual* should be used with each of the ability measures.

PART 3: THE CPP 8-11: HOW IT CAN BE USED

The CPP 8-11 as Part of a Career Guidance Program

The CPP 8-11 has been developed as a stimulus for encouraging and providing focus to the active exploration of career considerations by junior and senior high school students. The CPP 8-11 is intended for use as an articulated part of a school career guidance program offered to all students on a continuing basis, and is designed to enhance rather than take the place of such a program. Such career guidance programs ideally provide information and experiences designed to develop awareness of self and the world of work, along with skills in career exploration, planning, and decision making. An overview of the major emphases of these programs is provided in Figure 3.1.

As suggested by Figure 3.1, the emphasis of career guidance activities in grades K-6 is on the development of career awareness, with an overview of broad occupational clusters providing students with information about many different kinds of occupations and work settings. By viewing the roles and work places of different workers, students will, it is hoped, begin to develop an awareness and appreciation of how workers in broad "clusters" of occupations differ in their interests, abilities, values, and lifestyles.

As students progress into grades 7-9, they need assistance in exploring their own characteristics in the context of the characteristics of workers in various career fields. Students begin to identify tentative career directions which are personally attractive, and they may need help in finding ways to explore these possibilities. An appropriate step for many students in these grades is to focus exploration activity in specific regions within the total world of work. Students at this level must also learn about their own characteristics (e.g., interests, job values, abilities, etc.) and what these characteristics suggest in terms of careers. Finally, they must begin to develop skills in considering information as a part of planning and decision making. A comprehensive career guidance program for grades 7-9 provides information, experiences, and activities designed to help students with these tasks.

In grades 10-12 and beyond, career guidance programs typically provide more intensive exploration of career options. As students approach the transition from high school education to employment or further training or education, many will need assistance in developing and evaluating information and plans related to their own specific career directions.

Certainly there will be a wide range in the career planning readiness of students at this level. While some students may have made substantial progress in defining career directions and goals, many will likely be in the early stages of self/career exploration. These students will need a review of activities similar to those described earlier as appropriate for students in grades 7-9. Ideally, students participating in the Career Planning Program would have been introduced earlier to at least the following concepts as part of their career guidance experience:

Career awareness

- Work tasks vary for different kinds of workers.
- Different kinds of careers involve people who have different interests, skills, values, and goals.
- Different kinds of careers offer different kinds of satisfactions to workers.
- Careers can be grouped in various ways according to similarities and differences.
- People prepare for careers in different ways.

Self-awareness

- Each individual has unique interests, skills, values, and goals.
- Each individual is capable of working in several different occupations.

- Career directions selected by an individual reflect and shape his social, economic, and psychological experiences in life.

Career planning and decision making

- A career is a lifelong sequence of experiences and decisions related to the student's role in society.
- Exploration and planning can increase the control the individual has over his career direction.
- Career directions are defined over a long period of time, with early decisions influencing later decisions.
- Conditions and changes in the world of work can significantly influence career directions.
- Knowledge of resources is necessary for effective career planning.

Interested readers are referred to authors such as Herr and Cramer (1972) and Drier (1972) for more thorough discussions of the philosophy, goals, and approaches suggested for use in K-12 career guidance programs.

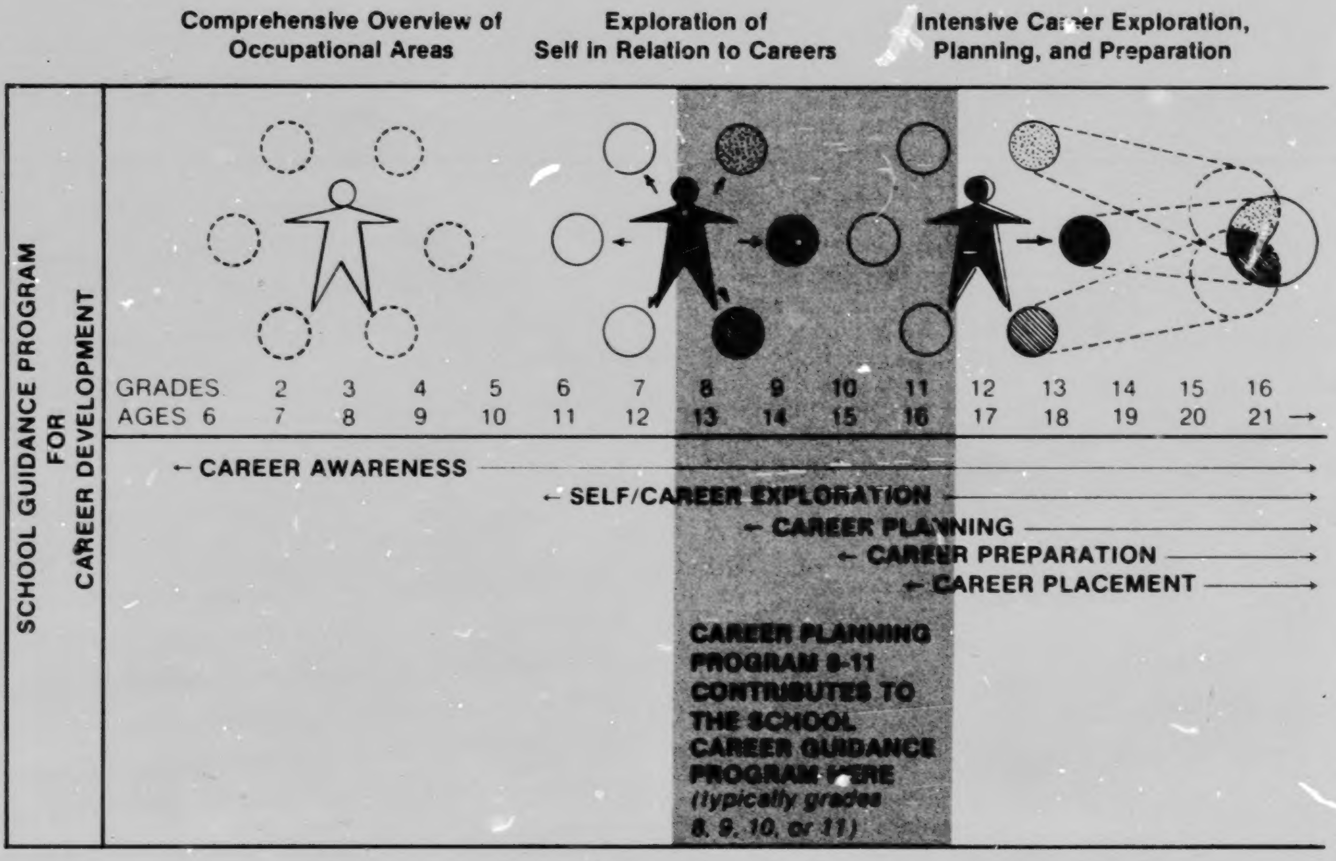
Comprehensive Overview of Occupational Areas
Exploration of Self in Relation to Careers
Intensive Career Exploration, Planning, and Preparation
SCHOOL GUIDANCE PROGRAM FOR CAREER DEVELOPMENT
GRADES 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
AGES 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 →
← CAREER AWARENESS →
← SELF/CAREER EXPLORATION →
← CAREER PLANNING →
← CAREER PREPARATION →
← CAREER PLACEMENT →
CAREER PLANNING PROGRAM 8-11 CONTRIBUTES TO THE SCHOOL CAREER GUIDANCE PROGRAM HERE
(typically grades 8, 9, 10, or 11)

Fig. 3.1. The CPP 8-11 within the Context of a School Career Guidance Program.

If students have not previously been involved in a career guidance program, the materials included in the CPP 8-11 can be used to introduce and review many of the concepts listed above. *Exploring: You and Your Career,* the CPP 8-11 Student's Guide, should be especially helpful. Counselors and teachers who wish to provide additional information and activities to supplement CPP 8-11 materials are referred to Appendix B: A Guide for Increasing Student Career Development. This Guide has been developed as a convenient pool of resources that can be consulted for this purpose. The many entries in Appendix B have been keyed to a career development outline based on the following major categories:

I. Occupational Awareness
II. Self-Awareness
III. Career Planning and Decision Making

Thus, CPP 8-11 users who are interested in improving a particular aspect of their students' career development—for example, career planning knowledge—can refer to the corresponding section (IIIA in this case) of the career development outline for references to appropriate activities and materials.

As an additional aid to counselors, two sets of transparency masters with discussion suggestions are presented in Appendix G. The Set One Visuals introduce the main ideas of the Career Planning Program and can also be used in preparing students for the Mini-Course in Career Planning described later. Set Two Visuals have been developed to assist the counselor in providing a "walking through" experience with the CPP 8-11 Student Report so that students become familiar with key concepts on the report just prior to receiving their own results.

A Note on Traditional Uses of CPP 8-11 Results

Part 1 of this handbook described several ways in which the Career Planning Program departs from traditional approaches to guidance testing. However, as suggested below, CPP 8-11 results can still be used in traditional ways.

Facilitating Self-Awareness via Score Profiles

Helping students achieve self-awareness has always been a concern of guidance and, as already noted, this concern is central in guidance for career development. Traditionally, a chief function of tests in guidance has been to promote student self-awareness. Although attention has now shifted to helping students learn about themselves through firsthand experiences and group interaction, tests can still play an important role in promoting self-awareness. The information provided by ability and interest measures is, after all, relevant to one's self concept and career plans. The recognition that *other* factors are also important does not detract from the relevance of test information. Rather, it serves to emphasize that guidance for self-awareness cannot stop with the interpretation of ability and interest profiles.

CPP 8-11 materials encourage self-awareness in several ways. For example, *Exploring* contains exercises involving job values, working condition preferences, and self-rated abilities. Students are asked to think through and "map" their tentative educational plans and to consider what their current occupational preferences say about them as persons. In addition, students are constantly reminded in *Exploring* to reassess themselves in light of their experiences. Self-awareness, or rather, awareness of self-in-relation-to-career, is also facilitated by the CPP 8-11 Student Report, chiefly through the sections presenting the "Exploration Priorities" and the eight "Steps in Career Exploration." Self information in a more traditional form is contained in the test score profiles printed under the flap of the report. Because the interpretation of score profiles is a standard procedure in guidance testing, one which most counselors should know quite well, only a few general suggestions for using the CPP 8-11 profiles in facilitating self-awareness are presented below.

As preparation for the use of the CPP 8-11 score profiles with students, counselors should review the following sections of this handbook (in addition to the explanatory material on the Student Report):

- *National Norms and Score Scales* (Part 2)
  See, especially, the discussion of stanines, --XX-- bands, and the verbal labels used in reporting experiences.

- *Content of CPP 8-11 Assessment Components* (Part 4)

  Note, especially, the rationale and content of each of the scales and the way the experience scales parallel the interest scales, thus making a dual interpretation possible. Also see page 13 of *Exploring*.

- *CPP 8-11 Norms* (Appendix F)

  Because the computer does all of the norms look-up work, CPP 8-11 users will have little need for norms tables. However, note the suggestions for translating stanines into an approximation of how students answered the CPP 8-11 interest and experience items.

- *Criterion-Related Validity* (Part 4)

  This somewhat technical section contains a wide variety of empirical evidence on real-world criteria associated with CPP 8-11 measures.

Probably the best way to introduce students to their ability, interest, and experience results is through the "case study" approach illustrated by the Set Two Visuals in Appendix G. Intended for use with groups, these visuals (transparencies) show how the eight "Steps in Career Exploration" on the Student Report apply to the results for two fictitious students. Although the test results themselves are not discussed, counselors can easily extend this approach to the ability, interest, and experience profiles. For example, a transparency master might be made for the score report of "Gary Smith" presented in Part 2 of this handbook. The profile section of the Student Report can then be discussed with students in conjunction with the interpretive material on the report. Through use of transparencies 12 and 13 in the Set Two Visuals, students might next be led into a discussion of the ways abilities and interests are related to the data, ideas, people, and things work tasks. The suggestions in step 7 on the report for relating abilities and interests to job families can also be discussed. Finally, students can be referred to page 13 of *Exploring* for further discussion of the abilities, interests, and experiences assessed by the Career Planning Program.

Whatever procedures are used, students must have the opportunity to ask questions along the way. Usually these questions will reflect the concerns of many members of the group. In particular, counselors must be prepared to point out again and again that high interests do not necessarily mean high abilities, and vice versa. Counselors should also be prepared to suggest ways that students can improve their abilities. Opportunities for doing this, of course, depend on the resources of the local school and community. A few ideas are presented on page 13 of *Exploring*.

Once students have been introduced to the score profiles (and other parts of the CPP 8-11 Student Report, as suggested in Appendix G), the reports can be distributed. Again, there should be opportunity for students to ask *general* questions about what is on the report. Interpretation of a specific student's results should, of course, be reserved for follow-up counseling sessions. Counselors are reminded that each student's results must be viewed in the context of other information about the student; e.g., needs, interests, home background, study habits, past grades, etc.

Estimating Expected Performance

Another traditional application of test results involves estimating the level of course performance to be expected of students. Typically, two types of course performance estimates are desired: (a) overall performance (grade point average), as an aid in identifying students who are underachieving; and (b) performance in specific courses, as an aid in determining who might profit most from special sections of a course (e.g., honors algebra, regular algebra, practical math).

The following Ability Scales should be given primary attention in estimating overall course performance: Reading Skills, Numerical Skills, and Language Usage. By combining scores on these three scales, counselors will usually obtain more accurate estimates than can be obtained through use of individual scales. The simple average of a student's stanines on these three scales will usually produce near optimum results.

Estimates of performance in specific courses should depend more heavily on the ability scales directly related to the courses. For example, the Numerical Skills scale might be given primary attention in math courses, although the Reading Skills scale is certainly relevant too. In many vocational courses, on the other hand, scores on the Numerical Skills scale might be considered in conjunction with scores for Mechanical Reasoning and Space Relations. Of course, past grades and teachers' evaluations can also be considered in obtaining course performance estimates.

Part 4 of this handbook provides evidence that the CPP 8-11 Ability Scales are related to a wide variety of educational criteria. However, counselors are urged to conduct studies related to their specific uses and setting. The simple, nontechnical expectancy (experience) table method described in most introductory measurement textbooks is recommended. See, for example, pages 49-56 in Froehlich and Hoyt (1959).

Discussion of CPP 8-11 uses turns now to the unique features of the program. Specifically, a "Mini-Course in Career Planning" is introduced as a vehicle for helping students relate their *selves* to careers.

Within the framework of the career development concepts and activities discussed above, the Career Planning Program provides a practical approach for introducing students to career exploration information and experiences. This approach, the CPP 8-11 Mini-Course in Career Planning, uses *Exploring: You and Your Career* as the basic reference. The mini-course model was chosen because of several potential scheduling advantages. For example:

- The mini-course module can be presented in schools offering concentrated elective experiences at various points in the school year. Follow-through activities could be coordinated through the counseling office or in classes of cooperating teachers.
- In schools using the study hall system, the mini-course could be offered by guidance personnel to groups of students in daily study hall sessions for a period of about 2 weeks, or in sessions meeting once or twice a week over an extended period of time.
- With counselors serving as resource people, the mini-course could be offered by teachers as part of career orientation activities in subject classes such as English and social studies or in extended homeroom periods.
- The mini-course outline and materials can be used as subject matter in guidance classes focusing on self/-career exploration and decision making.

The flexibility in scheduling a mini-course is conducive to the tailoring of course experiences to the needs, capabilities, and interests of different groups of students. In addition, mini-course units can be easily integrated into a school's ongoing career guidance program. Finally, the CPP 8-11 Mini-Course in Career Planning can readily be expanded and extended by the selection of resource suggestions presented for each of the units. Used in this way, the mini-course can serve as a starting point for a comprehensive career guidance program.

Purposes

The major purposes of the CPP 8-11 Mini-Course in Career Planning are to help students learn about career exploration concepts, methods, and resources, and to equip them to carry out their own continuing series of self/career exploration activities. Through these activities students can learn more about themselves, about the world of work, and about how to identify and test out their own potential career directions. The mini-course should also help students learn to monitor and evaluate their own career development. As a result, they should be better prepared to make satisfying career decisions.

To accomplish these purposes, the mini-course leader should promote an atmosphere in which students feel free to explore and share their thinking about themselves and their careers. Obviously, there should be very few right or wrong answers to dictate directions. The prevailing attitude should be that students can be given tools to assist in choosing what they feel is right for themselves, with an emphasis on individual choice and exploration. Students should be urged to accept individual differences and recognize each individual's freedom and right to make his own career choices and decisions.

Course Participants

The Mini-Course in Career Planning is especially appropriate for students who are just beginning the process of exploring themselves in relation to careers. In many programs, this will apply to students in grades 8, 9, or 10. However, the results of ACT's recent Nationwide Study of Student Career Development (Prediger, Roth, & Noeth, 1973) mentioned briefly in Part 1 of this handbook indicate that many 11th grade students want and need this help too. Many of these students have had little involvement in career exploration activities and are looking for help with career planning as they rapidly approach the transition from high school to post-high school activities.

The principles underlying career exploration and planning are similar for students considering all types of educational and vocational goals. Hence, the concepts and activities presented in the Mini-Course in Career Planning are appropriate for use with all students, regardless of educational plans and vocational aspirations.

Course Size

The ideal size for a mini-course group is directly related to course atmosphere. As already noted, it is important that each student feel that he or she is able to speak out, question, and contribute in the mini-course. Thus, the ideal number of participants could range from 6 or 8 students to as many as 20 to 25, depending on the nature and needs of the students and the experience and judgment of the course leader.

Resources Required

Staff. As a minimum for promoting career development through the use of CPP 8-11 materials, students will need assistance in the form of supervision, monitoring, and information sharing. Their most significant need, however, is for a supportive environment that will encourage and motivate active participation in the career exploration process.

One of the most important resources which can contribute to the successful use of this program is the positive support of the educational staff, including teachers, librarians, counselors, and administrators. A career guidance program cannot be the counselors' program, or the administrators' program, or the teachers' program. A career guidance program will function most effectively only when its objectives are woven into the entire educational process. Counselors must work with other educators to shape an environment which encourages the career development of each student. Status or "worth" stereotypes surrounding academic pursuits and career concerns must be removed. Class discussions of subject-related career information, questions, and concerns should be viewed as content legitimate for inclusion in course planning and lesson presentation.

Course Leader. While the counselor is usually the first person to be thought of as leader for a course in career planning, there are several possibilities for maximizing student exposure to the program. Consider, for example, the counselor in the role of team leader or consultant, working with a group of interested teachers, librarians, administrators, or paraprofessionals, who are in turn working within their classes, study halls, or homerooms. Using this approach, the counselor can concentrate his or her efforts on follow-through activities designed to continue the growth opportunities for students through group and individual sessions.

Materials. Many different kinds of career development materials are available. Thus, identifying and selecting materials most appropriate for a proposed application is a significant problem for program planners. To assist counselors and educators in the identification of materials, Appendix B: A Guide to Increasing Student Career Development has been prepared. A scanning of the references included in the Guide will provide an introduction to the breadth of materials presently available. However, the Guide does not contain a complete listing of all activities and materials which may be of value for increasing student career development. Furthermore, the listing of activities and materials in this Guide does not imply that they are the best or only resources available. Rather, the Guide is intended to provide a convenient pool of examples and resource suggestions as a stimulus for local career guidance efforts. It will be updated periodically to reflect the availability of new materials.

The available pool of materials listed in the Guide is much greater than any single school system would wish to purchase for its own use. For this reason, an outline of what can be considered the "bare essentials" in materials necessary for supporting the Mini-Course in Career Planning has been prepared. This list of materials is presented in Appendix A: Bare Essential Resources for Supporting a Mini-Course in Career Planning. These materials should serve as a valuable set of basic resources for counselors and educators as they work to develop and carry out their career development programs.

Students will need copies of their booklet, *Exploring: You and Your Career,* to use in the course. But the most important resources that students should bring to the Mini-Course for Career Planning are motivation and desire to learn more about themselves, their careers, and the world of work.

A Capsule Summary of the Course for Students

To publicize the Mini-Course in Career Planning (in a school newspaper or mini-course catalog) and to prepare students for the experiences and intended outcomes, a course description may be helpful. Here are some ideas for a suggested "Capsule Summary for Students":

> Are you trying to decide what courses to take now or what educational program to enter after high school? Want to find out more about a career you're interested in? Looking for ideas about career directions that might fit your interests and goals?
>
> The Mini-Course in Career Planning may be for you. You'll learn more about yourself (your interests and abilities) and about the world of work (the kinds of work people do in different types of jobs). You'll get suggestions on how to decide what you want in *your* career and how to find out about what jobs are really like. The many ways to prepare for jobs will also be covered. You'll learn some things about how to make decisions and how to plan so you can go in the direction you want your career to go. Does all this sound like something you need? Sign up now.

You may wish to revise the announcement to reflect special activities to be included in your program, such as a particular film to be shown, special projects to be included, career simulation games to be used, trips anticipated, availability of discussion with workers or school or union representatives, or similar opportunities for exploration by students. Of course, it can also be shortened for use as a brief catalog listing.

To assist course leaders and counselors preparing to lead the Mini-Course, we have developed an outline of objectives and activities appropriate for presentation in a nine-unit approach to career exploration and planning. The outline is provided as a guide and counselors and teachers will want to incorporate their own resources and ideas into the suggested framework to maximize the effect of the program on students. It should by no means be considered to be a total career development curriculum guide, but should be regarded rather as one part of such a total program. These suggested Mini-Course units appear on the following pages.

In addition to statements of objectives and activities, each unit of the Mini-Course includes references to resource annotations which appear in Appendix B: A Guide for Increasing Student Career Development. These referenced resources represent activities and materials which can be used as aids for expanding or emphasizing key concepts of the unit. All references to Curriculum Units (A) and Specific Career Guidance Activities (B) are found in materials which are included in the "bare essentials" resource list identified in Appendix A.

If use of the complete Mini-Course does not appear feasible in a given situation, schools are strongly urged to provide students with an orientation to the CPP 8-11 through the use of the Set One Visuals in Appendix G and discussion of pages 8-13 of *Exploring* (Booklet 1). This will give students an overview of the CPP 8-11 components and encourage prior thinking about job family preferences appearing in the second test unit. While the test units are being administered and students are waiting for their Student Reports, they should be encouraged to read and try out some of the activities in *Exploring*. When Student Reports are returned to the school, Set Two Visuals in Appendix G can be used to introduce groups of students to the key ideas of the reports just before they receive their own results. Follow-through suggestions in Unit 9 should also be adapted to provide students continuing opportunities for exploring themselves and their potential career directions.

Title: An Introduction to the CPP 8-11 and Career Development

Objectives:

- Students will be introduced to the ideas and components of the Mini-Course in Career Planning.
- Students will learn that *everyone* has a career.
- Students will become aware of the developmental nature of a career.

General Description:

The Set One Visuals in Appendix G and copies of *Exploring* can be used in a separate introductory session or at the beginning of this unit to introduce students to basic concepts in the CPP 8-11. In these materials, a career is defined as a lifelong series of activities and decisions related to education and work. The analogy of a journey is used and students are shown how their own career journeys have already begun. The mini-course leader might encourage students to think about and discuss where they have been on their career journeys and where they are headed now.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 3-5

Appendix G: CPP 8-11 Transparency Masters, Set One

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
  - A1a Where Am I Going?
  - A1b Why Do People Work?
  - A2d Workers and Their Jobs
  - A2e Developmental Nature of a Career
  - A2f Career Choice Game

B. Specific Career Guidance Activities
  - B1c The Me Nobody Knows
  - B2g Worker Interviews
  - B2i What Price Glory?

D. Filmstrips, Films, Tapes, and Games
  - D2m Opportunity Everywhere (film)
  - D2u Life Style and Work (film)
  - D2v Louis (film)

Title: Career Planning and Decision Making

Objectives:

- Students will learn different ways that decisions are made.
- Students will understand the steps involved in making career plans and career decisions wisely.
- Students will become aware that planning is important as a step in gaining more control of the future.

General Description:

Ways in which decisions, particularly career-related decisions, are made can be discussed, and the strengths and weaknesses of various approaches can be identified. The ten suggested steps involved in making good career plans and decisions can be presented. Students might be encouraged to identify career-related decisions they have made in the past as well as those they will be facing in both the near and the distant future.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 5-7

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
  - A1j The Making of a Decision

B. Specific Career Guidance Activities
  - B1d That's What I Want to Be

C. General Career Guidance Activities
  - C3 Group Guidance
  - C5 Modeling

D. Filmstrips, Films, Tapes, and Games
  - D2o It's Up to You
  - D2r Conflict and Compromise in Choice
  - D2s Confronting and Making Decisions
  - D4a Life Career Game

E. Reference Materials on Occupations
  - E1c The Encyclopedia of Careers and Vocational Guidance

Title: Self/Career Awareness: Job Family Preferences, Job Values, and Working Condition Preferences

Objectives:

- Students will understand job clusters and job families as ways to organize occupations involving similar work tasks.
- Students will begin to explore their own preferences in terms of what they want from their careers by–
  1. identifying two job preferences and related job families;
  2. reviewing several job value and working condition preference dimensions as a step to identifying their own preferences.

General Description:

Students are introduced to "landmarks" in the world of work, e.g., job clusters and job families. Exercises involving job choices and the identification of job values and working condition preferences are also presented. Students might be urged to consider what these preferences say about the type of person each of them is, and how such preferences can influence career directions.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 8-11

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
   - A1b Why Do People Work?
   - A2a Work Values and Goals

B. Specific Career Guidance Activities
   - B1c The Me Nobody Knows
   - B2b Heraldry and Careers

C. General Career Guidance Activities
   - C3 Group Guidance
   - C4 Role-playing
   - C5 Modeling
   - C6 Value Clarification

Title: Self/Career Awareness: Career-Related Abilities and Educational Plans

Objectives:

- Students will rate their abilities and relate them to the different job clusters.
- Students will become aware of CPP 8-11 inventories and tests and their value for self-exploration.
- Students will review different educational avenues and identify their own tentative educational plans.

General Description:

A career-related ability exercise and an overview of the tests and inventories in the CPP 8-11 are presented. A "road map" of educational avenues shows different ways of preparing for jobs. After completing the exercise in which they trace their present educational plans on the road map, students might discuss how abilities, educational plans, and educational opportunities can influence careers. Educational opportunities in the local area can be described and located on the road map. Students might then be asked to reexamine their road maps and perhaps retrace their plans.

Note: Administration of the inventories and ability measures in Booklets 1 and 2 might be undertaken after the completion of this Mini-Course unit.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 12-15, 25-26

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
  - A1k You and Your High School Education
  - A1l You and Your Post-High School Education
  - A2g Relating School Courses to the World of Work
  - A2h Vocational Interests and Aptitudes

B. Specific Career Guidance Activities
  - B1b It Moves, It Works
  - B1d That's What I Want to Be
  - B1k Who Needs It?
  - B1n Abilities and Ambitions
  - B2c Required Courses
  - B2m What Is Available? What Else Can Be Done?

C. General Career Guidance Activities
  - C3 Group Guidance
  - C5 Modeling

D. Filmstrips, Films, Tapes, and Games
  - D1g Choosing Your Career

Title: Relating Your *SELF* to Careers and the World of Work

Objectives:

- Students will become familiar with the four basic work tasks—the four "directions" in the world of work.
- Students will relate their current job preferences (Part 2 of *Exploring*) to the World of Work Maps for both job clusters and job families.

General Description:

Discussion of the four "directions" or basic work tasks (working with data, ideas, people, and things) is a good way to introduce students to the world of work. Ways of using the two World of Work Maps, which are structured around these basic work tasks, should be included in the discussion. Students might be asked to review their job values, working condition preferences, and career-related abilities, and then to relate these to the basic work tasks.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 16-20

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
  A1c What Kinds of Work Are There?
  A1d You and Artistic Occupations
  A1e You and Conventional Occupations
  A1f You and Enterprising Occupations
  A1g You and Investigative Occupations
  A1h You and Realistic Occupations
  A1i You and Social Occupations
  A2b Areas of Work

B. Specific Career Guidance Activities
  B1g Career Corners
  B2d Information, Storage, and Retrieval
  B2f Information Seminars and Beyond
  B2l Trade Journal

C. General Career Guidance Activities
  C3 Group Guidance

D. Filmstrips, Films, Tapes, and Games
  D1a People Who Help Others
  D1b People Who Influence Others
  D1c People Who Organize Facts
  D1d People Who Make Things
  D1e People Who Work in Science
  D1f People Who Create Art
  D1g Choosing Your Career
  D2a Work, What's It All About?

UNIT 6

Title: Student Career Exploration: Activities Involving Reference Materials

Objectives:

- Students will become aware of books, films, and other resources which they can use to gather information as they explore career directions.
- Students will use at least some of these resources in exploring their first two job preferences.

General Description:

The checklist activities (page 23 of *Exploring*) provide ways for students to become involved in active career exploration. Students might begin by gathering information about their first two job preferences and the job families in which they fall. (Appendix C provides several suggestions for organizing printed and media resources on occupations according to CPP 8-11 Job Families.) Students with similar job preferences might work together, pooling their efforts, and discussing the information they obtain and their reactions to it.

Resources:

Exploring (CPP 8-11 Student's Guide) page 23

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
- A2b Areas of Work
- A2c Exploring Occupations

B. Specific Career Guidance Activities
- B1m The Other Side of Glamour
- B2a Forty Newspapers Forty
- B2e To Market, To Market

C. General Career Guidance Activities
- C1 Career Conferences
- C3 Group Guidance
- C5 Modeling

D. Filmstrips, Films, Tapes, and Games
- D1h Preparing for the Jobs of the 70s
- D1r Careers by the Hundred
- D2b Careers in Allied Health Services
- D2c Careers in Building Trades
- D2d Careers in Business and Office Occupations
- D2e Careers in Communications
- D2f Careers in Industry
- D2g Careers in Machine Trades
- D2h Careers in Personal Services
- D2i Careers in Sales—"The Joys of Selling"
- D2j Careers in Skilled Services
- D2k Careers in Transportation
- D2l How Do You Get There?
- D2w Jobs in the World of Work: A Good Place to Be
- D2x Jobs for Men: Where Am I Going?
- D2y Jobs for Women: Where Are You Going Virginia?
- D3b What's It Like?
- D3c Career Development Laboratory Tape Series
- D4c Job Experience Kits, Grades 9-12

UNIT 7

Title: Student Career Exploration: Activities Involving People and Personal Experiences

Objectives:

- Students will see and/or talk with people involved in different jobs and work settings.
- Students will identify ways to become involved in work-related activities.

General Description:

Students should be helped to get started with activities four to nine on the checklist (pp. 23-24 of *Exploring*). Interview and observation outlines and role-playing activities could be used to provide "how-to-do-it" ideas to students. Lists of community individuals willing to discuss their jobs with students could be developed. Students could also be provided with lists of job-related activities. The mini-course group should provide students with the opportunity to share their feelings and reactions to these activities and experiences.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 23-24

Appendix B. A Guide to Increasing Student Career Development

A. Curriculum Units

A1k You and Your High School Education
A2c Exploring Occupations
A2d Workers and Their Jobs
A2g Relating School Courses to the World of Work
A2i Looking for a Job

B. Specific Career Guidance Activities

B1a Overview and Introduction to the Middle/Junior High School Career Education Activities
B1e They've Been Some Places and Seen Some Things
B1f Mississippi
B2c Required Courses
B2e To Market, To Market
B2g Worker Interviews

C. General Career Guidance Activities

C1 Career Conferences
C2 Field Trips
C3 Group Guidance
C5 Modeling

D. Filmstrips, Films, Tapes, and Games

D2m Opportunity Everywhere
D3d Motivation for Career Success
    1. Developing Commitment for Career Success
    2. Developing Habits for Career Success
    3. Developing a Life-Style for Intelligent Action
    4. Developing Leade[illegible]bility for Career Success
    5. Planning for Career Success
    6. Education for Career Success
D4b Career Games
D4c Job Experience Kits, Grades 9-12

UNIT 8

Title: Self-Evaluation of Career Planning

Objectives:

- Students will review and evaluate the steps they have taken in career planning.
- Students will identify the steps that need to be taken next.

General Description:

Students should review the steps in career planning and decision making (pp. 6-7 of *Exploring*) and the Self/Career Exploration Check List (pp. 21-22 of *Exploring*). Students might discuss and compare their career exploration experiences and evaluate the usefulness of what they have done. Additional career planning activities (next steps) should also be considered.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 6-7, 21-22

Appendix B: A Guide to Increasing Student Career Development

A. Curriculum Units
    A1j The Making of a Decision

B. Specific Career Guidance Activities
    B1d That's What I Want to Be
    B1n Abilities and Ambitions

C. General Career Guidance Activities
    C3 Group Guidance
    C4 Role-playing
    C5 Modeling
    C6 Value Clarification

D. Filmstrips, Films, Tapes, and Games
    D1g Choosing Your Career
    D1j The Job Attitude Series
    D1q Job Survival Skills
    D2o It's Up to You
    D3d Motivation for Career Success
        1. Developing Commitment for Career Success
        2. Developing Habits for Career Success
        3. Developing a Life-Style for Intelligent Action
        4. Developing Leadership Ability for Career Success
        5. Planning for Career Success
        6. Education for Career Success

This unit should be undertaken after the Mini-Course is completed and after the CPP 8-11 Student Reports have been returned to the school. The Set Two Visuals of Appendix G are an important part of the unit and have been prepared to help students interpret their CPP 8-11 Student Reports. The purpose of this unit is to help students use the information on their Student Reports and to suggest ways to follow through on career exploration. Ideally, the unit should be carried out in a group setting under the joint direction of the course leader and the counselor(s) who will work with the students in the follow-through activities of the school.

UNIT 9

Title: Guiding Students to Interpret Their CPP 8-11 Student Reports

Objectives:

- Students should be able to understand and use the information on their CPP reports for additional self/career exploration.

General Description:

Steps for interpreting the CPP 8-11 Student Report should be introduced with the aid of the Set Two Visuals of Appendix G. After consideration of the results for the two fictitious students in the visuals, reports for each student may be distributed. Review the cover flap introduction with the students and work through the steps for identifying "Exploration Priorities" with the students. Discussion of an example of a way to use the charts on the back of the report might begin with a question such as "How would you describe Job Family A in terms of work tasks and worker abilities and interests?" Parts of the Student Report should be related to pages of *Exploring* whenever possible. For example:

- The information on the flap of the report is discussed on pages 17-18 of *Exploring*.
- The Exploration Priorities are described on page 16.
- The regions of the "World of Work" are presented on pages 19-20.
- The suggestions in Step 8 are related to the "Career Exploration Check List" on pages 23-24.

Introduce students to the follow-up opportunities offered in classes and guidance activities. For example, the counseling staff may wish to offer opportunities to students for help in the continuing process of identifying, exploring, and planning their career options. Such opportunities could include:

- Inviting students to "drop in" discussions with the counselor on topics such as CPP 8-11 results, considering the meaning of career information gathered by the student, identifying next steps for exploration and preparation.
- Scheduling sessions with each student to review the status of the student's exploration and planning.
- Offering special group sessions on topics that may appeal to groups of students with special interests.

Be sure students know about and feel welcome to use the career exploration and planning resource materials and staff services available in the school.

Resources:

Exploring (CPP 8-11 Student's Guide) pages 13, 16-20, 22

Appendix G: CPP 8-11 Transparency Masters, Set Two

PART 4: CPP 8-11 DEVELOPMENT AND SUMMARY OF RESEARCH

A description of the rationale, components, and uses of the Career Planning Program for grades 8 through 11 was provided in the previous parts of this handbook. In this part, development of the CPP 8-11 assessment components is described along with research on their measurement properties.

Development of CPP 8-11 Assessment Components

The Career Planning Program for grades 8-11 is closely related to ACT's Career Planning Program for grades 12-13 (ACT, 1972) which was described briefly in Part 2 of this handbook. Both programs include ability measures, self-estimates of ability, an interest inventory, and scales covering job related experiences. In addition, both contain questions on career plans, job values, and working condition preferences. CPP 8-11 measurement components were, in fact, a downward extension of CPP 12-13 components, with differences in the two programs reflecting differences in the needs of the two age groups which they serve.

Comparison of CPP 8-11 and CPP 12-13 Measures

Table 4.1 lists comparable scales for the three major assessment components (abilities, interests, and experiences) in the two programs. In the case of the Ability Scales, both programs have five scales that are similar in title, format, and content. The programs differ in that the CPP 8-11 does not have a Nonverbal Reasoning Scale. In addition, the CPP 8-11 Numerical Skills Scale combines items types from the CPP 12-13 Numerical Computation and Math Usage Scales. Both of these modifications were made to reduce the testing time required of younger students.

Eight interest areas are covered by the CPP 12-13 Vocational Interest Profile, Form G, while only six areas are covered by the CPP 8-11 Vocational Interest Profile, Form A. Five of the six CPP 8-11 interest areas are covered by the CPP 12-13. However, the CPP 8-11 Technical Scale combines items from the Trades and Technical Scales of the CPP 12-13. While the CPP 12-13 Health Scale does not appear on the CPP 8-11, related interests are covered by the Social Service and Science Scales.

The CPP 12-13 counterparts of the CPP 8-11 Experience Scales are called Competency Scales. Again, the programs have five comparable scales. As in the VIP Scales, the CPP 12-13 Trades and Technical Competency Scales are represented by one scale, the CPP 8-11 Technical Scale.

Similarities in the measurement components of the two programs are reflected in correlation data presented in Tables 4.2, 4.3, and 4.4. These data are based on the scores of 334 11th graders attending two of the norm group schools. In both of the schools, the CPP 12-13 was administered approximately 8 weeks after the CPP 8-11. Although a shorter time interval between administrations would have provided a better estimate of the true relationship between measures in the two programs, practical considerations within the schools precluded this approach. The correlations, then, are probably attenuated to some degree by the passage of time and, hence provide conservative estimates of the relationship between similar measures.

As shown in Table 4.2, correlations for similar Ability Scales ranged from .68 for Clerical Skills to .80 for Reading Skills. Test-retest reliabilities, which are reported in a later section, ranged from .75 to .87 for a comparable time period. Thus, the correlations between similar scales on the two instruments approach those obtained by retesting with the same scale.

TABLE 4.1

Relationship between CPP 8-11 and CPP 12-13 Assessment Components

CPP 8-11 components	Parallel CPP 12-13 components
1 *Ability Scales*	*Ability Scales*
Space Relations	Space Relations
Reading Skills	Reading Skills
Clerical Skills	Clerical Skills
Numerical Skills	Numerical Computation, Math Usage
Language Usage	Language Usage
Mechanical Reasoning	Mechanical Reasoning
—	Nonverbal Reasoning
2 *CPP 8-11 Vocational Interest Profile, Form A*	*CPP 12-13 Vocational Interest Profile, Form G*
Social Service	Social Service
Business Contact	Business Contact
Business Detail	Business Detail
Technical	Trades, Technical
Science	Science
Creative Arts	Arts
—	Health
3 *Experience Scales*	*Competency Scales*
Same areas covered as for interests.	Same areas covered as for interests with Health omitted.

Results for the VIP Interest Scales are presented in Table 4.3. In general, the correlations between similar scales are somewhat lower than those obtained for the Ability Scales. This is not surprising since the CPP 8-11 and CPP 12-13 scales contain only 15 and 10 items, respectively. The lowest correlations were obtained for the CPP 8-11 Technical Scale. This scale, it will be recalled, has no direct counterpart in the CPP 12-13. Hence, the underlined correlations (.52 and .46) are for scales that are somewhat dissimilar. The correlations between comparable scales range from .60 to .74, figures which again compare favorably with test-retest reliabilities.

The Experience and Competency Scale correlations presented in Table 4.4 indicate a generally lower level of relationship than reported above. These scales are also rather short. In addition, there are substantial differences in item content which reflect differences in the experiences and competencies of the age groups for which they are intended. This latter factor, in particular, can be expected to reduce the level of correlation between similar scales. Test-retest reliabilities for the Experience Scales are generally much higher than the correlations between similar scales. Thus, CPP 8-11 and CPP 12-13 measures differ most in the experience-competency areas.

The correlations of scales measuring divergent types of abilities, interests, and experiences are also presented in Tables 4.2, 4.3, and 4.4. In only 2 of 132 instances does a scale correlate higher with a divergent scale than with a similar scale. Both exceptions were observed for the CPP 8-11 Business Contact Experience Scale, which covers an area of experience in which students in grades 8 through 13 greatly differ.

Considered as a whole, the correlational data for the CPP 8-11 and CPP 12-13 provide strong support for the comparability of the ability, interest, and experience

TABLE 4.2

Correlations between CPP 8-11 and CPP 12-13 Ability Scales, Males and Females Combined (N=334)

CPP 8-11 Scales	CPP 12-13 Scales							Stanine	
	Space Relations	*Reading Skills*	*Clerical Skills*	*Numerical Computation*	*Math Usage*	*Language Usage*	*Mechanical Reasoning*	*Mean*	*S.D.*
Space Relations	79	44	42	48	52	41	64	4.4	2.0
Reading Skills	51	80	53	62	63	68	49	4.5	1.9
Clerical Skills	52	55	68	60	57	51	30	4.4	2.1
Numerical Skills	59	65	55	72	71	63	53	3.9	1.8
Language Usage	43	59	47	59	52	70	35	4.9	2.0
Mechanical Reasoning	53	38	30	41	49	35	78	4.1	2.0

Note.—Decimal points have been omitted from the correlation coefficients. Results for similar scales are underlined.

TABLE 4.3

Correlations between CPP 8-11 and CPP 12-13 Interest Scales, Males and Females Combined (N=334)

CPP 8-11 Scales	CPP 12-13 Scales								Stanine	
	Social Service	*Business Contact*	*Business Detail*	*Trades*	*Technical*	*Science*	*Health*	*Arts*	*Mean*	*S.D.*
Social Service	60	35	13	04	12	36	53	30	5.6	1.9
Business Contact	38	70	53	15	32	26	25	45	5.5	2.0
Business Detail	23	58	74	17	33	18	21	31	5.3	2.1
Technical	03	22	31	52	46	21	00	26	4.8	1.9
Science	29	18	18	13	29	72	60	38	5.5	1.9
Creative Arts	23	26	23	23	32	33	16	70	5.4	2.0

Note.—Decimal points have been omitted from the correlation coefficients. Results for similar scales are underlined.

TABLE 4.4

Correlations between CPP 8-11 Experience Scales and CPP 12-13 Competency Scales, Males and Females Combined (N=334)

	CPP 12-13 Scales							Stanine	
CPP 8-11 Scales	*Social Service*	*Business Contact*	*Business Detail*	*Trades*	*Technical*	*Science*	*Arts*	*Mean*	S.D.
Social Service	59	42	24	20	33	38	41	5.6	1.9
Business Contact	56	46	28	13	24	30	47	5.4	1.9
Business Detail	40	43	48	30	39	39	40	5.0	1.9
Technical	12	36	30	46	41	30	25	4.8	1.9
Science	32	26	19	10	36	60	38	5.5	1.9
Creative Arts	46	35	23	24	41	44	62	5.4	1.9

Note.—Decimal points have been omitted from the correlation coefficients. Results for similar scales are underlined.

components. The CPP 8-11 was intended to be a downward extension of the CPP 12-13. The data indicate that modifications intended to make the scales more appropriate for use with younger students retained similarity in the attributes assessed.

Discussion to this point has focused on CPP 8-11 and CPP 12-13 measurement components which provide scores. However, there are also similarities among the components reporting student responses to specific questions. For example, the working condition preferences items and self-estimated ability items in the two programs are very nearly identical. The six CPP 12-13 job value items also appear in the CPP 8-11, with "altruism" and "status" having been added to the latter to make it somewhat more comprehensive. There are substantial differences in the career plans questions (e.g., occupational preferences, educational plans) used in the two programs, however. In particular, the CPP 8-11 system for classifying a student's occupational preferences according to job families is entirely new. This system, which is described later in the handbook, is the product of research conducted during the development of the CPP 8-11. The CPP 12-13 career plans items will be brought into line with the CPP 8-11 items at the next revision.

Development and national norming of CPP 8-11 assessment components are described next, followed by a discussion of the rationale and content of *specific* components. Readers interested in additional information on the CPP 12-13 are referred to the *Handbook for the ACT Career Planning Program,* 1972 Edition (ACT, 1972).

Initial Stages of CPP 8-11 Development

As suggested by the close relationship between the Career Planning Programs for grades 8-11 and grades 12-13, work on the CPP 8-11 actually began with the development of the CPP 12-13. In November 1968 the first CPP 12-13 item tryout data were obtained from 150 students in a California 2-year college. During the fall and winter of 1969, a revised instrument was administered to approximately 1,400 students in six 2-year colleges in Pennsylvania, Iowa, Oregon, Texas, and Colorado. Analyses of results and further revisions were followed by the administration of the instrument to 450 seniors in nine high schools in Iowa. Results of analyses from both these tryouts led to further revisions and refinements which were incorporated in new forms that were given to 178 students at a 2-year college in Iowa and to 597 students at three 2-year colleges in Illinois in the spring of 1970. Analysis of these data suggested modifications of ability items, construction of new items, revisions in the time limits for the Ability Scales, revisions in the item format of several self-report components, and changes in test directions to provide greater clarity.

As these tryouts were being conducted, three advisory councils and a panel of students were asked to review the program and to make suggestions for its further development and improvement. Advisory Council I consisted of vocational-technical educators and researchers. Advisory Council II consisted of student personnel workers and deans of students from community colleges and vocational-technical institutions. These two groups, each from its own perspective, focused on the career guidance information needs of students and educators. The ACT Community College Advisory Council, consisting of community college leaders, also gave direction to the development of the program. The panel of students, drawn from a broad range of programs at Milwaukee Area Technical College, also reviewed the instruments and offered helpful suggestions. Recommendations from each of these groups, along with the reactions of students who had participated in the tryout studies, were considered in revisions of the instrument.

On the basis of these sources of information, CPP 12-13 measures were prepared for use in the nationwide normative study conducted during the fall of 1970. As before, results from the normative study were analyzed to determine the appropriateness of the information collected. The difficulty, speededness, and related item characteristics of the Ability Scales were examined to evaluate their psychometric characteristics. Scale intercorrelations were examined to determine the degree of overlap. In addition, the predictive and construct validities of the various measures were analyzed to assess the usefulness of each type of measure. Revisions based on these data led to the development of the present form (Form G) of the CPP 12-13 assessment instrument.

During the developmental work described above, ACT was constantly reminded, both by its advisory committees and by counselors in the tryout institutions, that younger students also need help with career planning. The CPP 12-13 had been designed to serve the information needs of students at the transition point between high school and post-high school pursuits. ACT recognized, however, that the groundwork for decisions made at this transition point is laid much earlier, that career planning and decision making are processes, not events.

ACT was also reminded, in particular by its High School Advisory Council, that many of the features of the CPP 12-13 (e.g., the career clusters, the exploration priorities, the student booklet focusing on career development concepts) could be equally useful in meeting the career development needs of junior and senior high school students. It appeared that if the program could be given a broader, exploratory emphasis, essentially the same assessment components could be used. For all of these reasons, then, ACT began work on a downward extension of the CPP 12-13 shortly after developmental work was completed.

Research resulting in a Career Planning Program for grades 8-11 is described below. The career guidance concepts and objectives guiding CPP 8-11 development were discussed in Part 1 of this handbook.

Development of a Preliminary Form for the CPP 8-11

In April 1971 the CPP 12-13 was administered to 662 students in grades 9, 10, and 11 at a school in a middle socioeconomic level suburban area of California (identified as Sample A in Table 4.5). In February 1972, 727 10th graders attending a school in a middle socioeconomic level suburban area of Illinois (Sample B) also completed the CPP 12-13. The purpose of both administrations was to obtain information on the appropriateness of the CPP 12-13 assessment components for high-school-aged youth.

Analyses of the data from these two samples, together with counselor feedback, suggested that several revisions were needed to make the instruments more appropriate for use with younger students. Subsequent revisions in the Ability Scales included adjustments in time limits and the replacement of difficult items with items having a lower level of difficulty. In order to cover the broad range of ability represented by students in grades 8 through 11, two forms for the Reading Skills and Numerical Skills Scales were developed. Finally, total testing time was reduced by elimination of the Nonverbal Reasoning Scale and the combination of Numerical Computation and Math Usage into a single scale, Numerical Skills.

The CPP 12-13 Competency and VIP Interest Scales were also revised to make them appropriate for use with younger students. The tryout studies revealed that many of the experiences and activities contained in the Competency Scales were not generally available to or expected of students in grades 8 and 9. Hence, new items had to be written. The new items and revised items from the CPP 12-13 scales were then assigned on an a priori basis to one of six tentative scales corresponding to Holland's six types of personal orientations and work environments (Holland, 1973). CPP 12-13 interest items were revised and new items were developed for the same reasons and in much the same manner. These items were also assigned to a priori scales representing each of Holland's six types.

The resulting experience and interest items were circulated to five counselor consultants representing a wide range of school settings. Reactions to the usefulness of these types of measures in general were sought, but more specifically, counselors were asked to judge the appropriateness of the items, on an item-by-item basis, for various age and socioeconomic groups. Ideas for item revisions and new items were also solicited.

The suggestions of the counselor consultants were used in further revisions of the CPP 12-13 Interest and Competency Scales. These revisions, in conjunction with the revisions of the Ability Scales described above, resulted in a preliminary form of the CPP 8-11 assessment instrument. The ability and interest scales used in this form retained many of the characteristics of the parent scales on the CPP 12-13. However, as explained above, the CPP 12-13 Competency Scales were revised substantially to make them appropriate for use with the grades 8-11 target group. Since the CPP 8-11 scales focused on job-related experiences and activities rather than competencies, the title "Experience Scales" was adopted.

TABLE 4.5

CPP 8-11 Item Tryout Samples

Sample	Date tested	Number of schools	Number tested per grade *9*	*10*	*11*	*Total*
A	4/71	1	199	239	224	662
B	2/72	1		727		727
C	4/72	6	1,590			1,590
Total		8	1,789	966	224	2,979

Final Revisions of the CPP 8-11 Preliminary Form

In April 1972, the preliminary form of the CPP 8-11 was administered to students in tryout Sample C, identified in Table 4.5. This sample included 1,590 9th grade students attending a small rural high school, two inner-city junior high schools, and three junior high schools in middle-sized communities (a total of five communities in four states). The following CPP 8-11 components were administered, with unit numbers on the final form shown in parentheses: Exploratory Job Experiences (Unit 1), Career Plans (Unit 2), Vocational Interest Profile (Unit 3), and Reading Skills (Unit 4). The job values and working condition preferences exercises appearing in *Exploring* were also tried out. The ability measures in Units 5 through 9 were not administered because sufficient data on item characteristics were available from Samples A and B.

Item analysis data from Samples A, B, and C were assembled for final inspection in October 1972. These data included response distributions for each item, indices of item difficulty and discrimination for each of the Ability Scales, and correlations between item responses and corresponding total scale scores for the Interest and Experience Scales. In addition, means, standard deviations, and internal estimates of reliability were available for all scales, along with scale intercorrelations. Information on the reading level of the preliminary form was obtained through the use of the Forbes Readability Formula (Forbes & Cottle, 1953). On the basis of these data, items were accepted, revised, or rejected for use in the norming form of the CPP 8-11.

The CPP 8-11 norming study was conducted in the spring of 1973. Data provided by the norming study indicated that modifications in the Language Usage and Space Relations Ability Scales were desirable to lower the level of difficulty of the former and reduce the speededness of the latter. Early in 1974, approximately 800 9th and 700 11th grade students attending seven Iowa junior and senior high schools were administered either the original versions of the two scales or the revised versions. The schools were selected to be representative of the types of schools involved in the original norming study. Nearly all 9th and 11th grade students enrolled in the schools were involved in the study. Students at each school were assigned randomly to one of two groups. The first group was administered the original versions of the two scales whereas the second group completed the revised scales. The results of the study were used to perform an equi-percentile equating analysis which yielded estimates of norms for the revised scales.[1]

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[1] Unless otherwise noted, the data on reliability and related scale characteristics are reported for the revised scales. Validity data on the other hand, are based on results for the original scales. Since the revisions resulted in higher reliabilities, it is reasonable to assume that scale validities have also been increased somewhat.

The National Norming Study

CPP 8-11 norms are based on a multistage probability sample of 8th, 9th, and 11th grade students tested in the spring of 1973. Approximately 32,000 students in 200 schools located in 33 states took the CPP 8-11 and ACT's companion instrument for grades 8-11, the Assessment of Career Development.

Sampling Procedures

The target population for the norming study was defined as all full-time 8th, 9th, and 11th grade students enrolled in public or Catholic schools in the United States in the spring of 1973. A two-stage probability sample of schools was selected by Research Triangle Institute using sampling frame data developed for the National Assessment of Educational Progress. First, primary sampling units (PSUs) were selected from a frame consisting of a list of counties or groups of contiguous counties stratified by region, size of community (SOC), and socioeconomic status (SES). The four geographic regions were: Northeast, Southeast, Central, and West. The SOC strata were: (a) counties containing big cities; (b) counties making up the fringes around big cities; (c) counties containing medium-sized cities; and (d) all counties not included in a, b, or c. The SES index used to construct substrata within the region-by-SOC strata was based on 1970 county census data such as housing value and rent.

Within each sample PSU, three samples of schools were independently selected, one sample for each of grades 8, 9, and 11. These were selected with probability proportional to the grade enrollment of the school. Each selected school had the option to test either all students in a specified grade or a random subsample (N=60) of the students in that grade. If the school elected to subsample, it was asked to send ACT an alphabetical list of all students in the grade. ACT then randomly selected the 60 students to be tested.

In all, 321 schools located in 79 PSUs were selected into the norm group sample. Testing was completed in 201 schools, the remaining being unable or unwilling to test during the time period set for the study. Results from 4 of the 201 schools were not used because of administrative problems such as answer sheets being temporarily lost in the mail.

Within the 197 schools included in the sample, the vast majority of selected pupils completed the CPP 8-11. However, a small percentage of students did not take the battery at all. An additional group did not finish the CPP 8-11 and the accompanying measures in the Assessment of Career Development. A complete set of results was obtained from 28,298 students.

The procedures used in selecting the sample guaranteed each student in the defined population a chance of being selected into the sample. But because each student in the population did not have an *equal* chance of being selected, it was necessary to account for this unequal probability by assigning a weight to each selected student. The weight assigned to a sample student was the inverse of his/her probability of being selected into the sample.

Since not all selected schools participated in the norming study and since not all selected students completed the test battery, some adjustment was necessary to account for this nontesting. The adjustment was made by means of an additional weighting process. Within a school, students who had completed the CPP 8-11 were assigned a weight that took into account those sample students who had not completed the CPP 8-11. Where whole schools were not tested, the school was matched with a similar nearby school that had participated in the norming. Students in the participating school were assigned a weight to account for the nontested school.

In this manner, each of the 28,298 sample students who completed the CPP 8-11 was assigned a final weight made up of the product of the above three weight components. By weighting the sample data in this way, the results obtained in the norming study correctly reflect the characteristics of the defined population. CPP 8-11 norms distributions are presented in Appendix F.

Data Collection Procedures

In the fall of 1972, the principal of each norm group school was mailed materials describing the norming study measures and the reports that would be provided to schools in return for their participation in the study. Follow-up letters and phone calls were made to ensure that each sample school understood what was involved. Schools then returned a form either agreeing or refusing to participate in the study.

Detailed directions for administering the CPP 8-11 were provided in a test administrator's manual. For orientation purposes, a leaflet discussing several concepts related to career planning was provided for distribution to students in advance of the testing. All testing was completed by May 1973, with final totals indicating that 201 schools in 33 states had participated in the study.

Tables 4.6 through 4.9 provide an overview of selected characteristics of the norming sample. A more complete description of the sampling procedures is provided by ACT Research Report No. 65, *Considerations and Procedures in National Norming: An Illustration Using the ACT Career Planning Program and the Assessment of Career Development.* Copies can be obtained from the Publications Division of ACT.

TABLE 4.6

Number of Students in CPP 8-11 Norm Group by Grade and Sex

	Grade			
Sex	*8*	*9*	*11*	*Total*
Male	4,384	5,342	4,623	14,349
Female	4,438	4,827	4,684	13,949
Total	8,822	10,169	9,307	28,298

TABLE 4.7

Number of Schools in CPP 8-11 Norm Group by Grade and Size of Community

	Grade			
Size of community	*8*	*9*	*11*	*Total*
Counties containing big cities	13	17	14	44
Counties located in fringes around big cities	11	9	19	39
Counties containing medium-sized cities	13	16	15	44
Remaining counties	24	22	24	70
Total	61	64	72	197

TABLE 4.8

Number of Schools in CPP 8-11 Norm Group by Grade and Region

	Grade			
Region	*8*	*9*	*11*	*Total*
Northeast	11	13	16	40
Southeast	18	17	20	55
Central	16	15	19	50
West	16	19	17	52
Total	61	64	72	197

TABLE 4.9

Number of Schools in CPP 8-11 Norm Group by Region and Size of Community

	Region				
Size of community	*Northeast*	*Southeast*	*Central*	*West*	*Total*
Counties containing big cities	9	7	13	15	44
Counties located in fringes around big cities	13	8	8	10	39
Counties containing medium-sized cities	10	12	10	12	44
Remaining counties	8	28	19	15	70
Total	40	55	50	52	197

Content of CPP 8-11 Assessment Components

The content of each of the CPP 8-11 assessment components is described below with the two general categories introduced in Part 2—formal assessment components and informal assessment components—used to differentiate the two major types of CPP 8-11 assessment procedures.

Formal Assessment Components

Included in this category are tests and inventories which are administered, scored, and reported according to traditional procedures for standardized tests and inventories.

Interest Scales (Unit 3)

As already noted, the CPP 8-11 Vocational Interest Profile, Form A, is a modification of the CPP 12-13 Vocational Interest Profile. Both inventories use Holland's six types of personal orientations (Holland, 1973) for their underlying theoretical structure. The occupational groups and associated interpersonal relationships proposed by Roe (1956) and Roe and Klos (1969) are also closely related to structure of the VIP Interest Scales. Research by Cole (1973), Cole and Hanson (1971), Edwards and Whitney (1972), and Holland (1973), among others, indicates that Holland's types may well represent the basic, skeletal structure of human interests. Much of this research is summarized in ACT Research Reports No. 64 (Hanson, 1974) and No. 67 (Prediger & Roth, 1974), which are available from the Publications Division of ACT.

Table 4.10 shows the relationship between CPP 8-11 scale titles, Holland types, and Roe groups. Representative items for the CPP 8-11 scales are listed in Table 4.11 along with the CPP 8-11 Job Clusters most closely related to the content of each scale. (As summarized in a later section on the ACT Occupational Classification System, a number of research studies indicate that occupations and interests can be classified according to similar dimensions.) Together, Tables 4.10 and 4.11 should provide readers with an adequate description of the content of the Interest Scales.

The CPP 8-11 Interest Scales contain 90 items with 15 items allocated to each scale. Students are asked to express the degree to which they would like or dislike doing the activity represented by each item. Item responses can range, on a 5-point scale, from "I would dislike this very much" to "I would like this very much." Raw scores consist of the average response across all items. A minimum of 7 items on a scale must be answered before a score is provided. Scale content emphasizes familiar career-related activities, many that students may have experienced firsthand, rather than job titles or esoteric descriptions of job tasks.

Experience Scales (Unit 1)

Career-related experiences both inside and outside of the classroom can help students to acquire firsthand knowledge of different areas of the world of work and to

TABLE 4.10

CPP 8-11 Interest Scales with Corresponding Holland Types and Roe Groups

CPP 8-11 Interest Scale titles	Holland types	Roe groups
Social Service	Social	Service
Business Contact	Enterprising	Business Contact
Business Detail	Conventional	Organization
Technical	Realistic	Technology, Outdoor
Science	Investigative	Science
Creative Arts	Artistic	General Cultural, Arts and Entertainment

relate their *selves* to jobs in these areas. Students who have had experiences in several career-related areas are better equipped to judge whether they should plan in these areas. Thus, these experiences can play a significant role in career planning and decision making.

The CPP 8-11 Experience Scales are a downward extension of the CPP 12-13 Competency Scales as described in the section on CPP 8-11 development. Because the Experience Scales cover the same six areas as the Interest Scales, counselors can help students evaluate interest in light of experiences. For example, the implications of low interest in an area coupled with *few* experiences can be compared with the implications of low interests in combination with *many* experiences.

The CPP 8-11 Experience Scales contain 90 items, with 15 items allocated to each scale. Typically, one-third to one-half of the Experience Scale items have direct counterparts on the corresponding Interest Scales. Students respond to each activity (item) by indicating how often (never, once or twice, or several times) they have done that particular activity. A 3-point scale is used for each item, with raw scores consisting of the average number of points for all items on a scale. A minimum of 7 items must be answered before a score is reported for a scale.

The Experience Scales survey formal experiences (e.g., planned extracurricular activities, part-time jobs, clubs, religious and service groups, etc.) and informal experiences (e.g., peer group activities, pastimes, hobbies, etc.). Representative items for each scale are listed in Table 4.12.

Ability Scales (Units 4-9)

Research and theoretical work over the past 50 years has led to the currently well-accepted position that there are many different types of abilities. One of the main goals in constructing the CPP 8-11 Ability Scales was to include those types of human ability most relevant to success in school courses, job preparation programs, and occupations. A secondary goal was to measure those abilities as efficiently as possible.

Research has consistently shown that verbal ability is important in the learning process. Transmission of knowledge and information is largely a verbal activity. In addition, many fields of study include quantitative subject matter, for example, the sciences and business. Thus, measures of both verbal and quantitative ability seem appropriate to the goals and purposes of the CPP 8-11.

However, research has also demonstrated the limited applicability of academic abilities to the world of work. Even a cursory examination of this world reveals the innumerable occupations for which academic abilities are of little importance on the job. Furthermore, grades in academic courses bear only a slight relationship to successful performance in many occupations. Studies have also shown the relative independence of academic performance, both in school and on tests of academic ability, and subsequent achievement in areas such as art, music, drama, leadership, writing, and science. For the adult population of the United States, nonacademic abilities and skills are necessary and valuable. Thus, to assess properly an individual's educational and vocational strengths and weaknesses, these nonacademic abilities and skills must also be measured.

Certainly there is much yet to be learned about the abilities critical to success in school courses, in job preparation programs, and on the job. However, extensive data on the use of tests in the prediction of educational and vocational criteria already exist. From this accumulated stockpile of information, areas of "nonacademic" ability shown to be most useful in the past were selected for inclusion in the CPP 8-11. The abilities selected were mechanical reasoning, clerical skills, and space relations. In selecting these abilities, other types of abilities, for example, perceptual skills and manual dexterity, were necessarily excluded. Some aspects of perceptual skills, however, are covered in the CPP 8-11 Clerical Skills and Space Relations Scales. Manual dexterity measures, while useful for certain specific occupations, have been shown in reviews by Ghiselli (1966) and Prediger, Waple, & Nusbaum (1968) to have little relationship to performance in job preparation programs or on the job. Finally, the CPP 8-11 Ability Scales are complemented by the ten self-rated abilities appearing as an exercise in the CPP 8-11 student's guide, *Exploring: You and Your Career.* The self-ratings include several areas of ability that are difficult or impossible to assess with paper and pencil tests, e.g., artistic ability, working with people.

TABLE 4.11

Representative Items for CPP 8-11 Interest Scales

Scale title[a]	**Students are asked to indicate how much they would like doing activities such as those listed below.**
Social Service (Social, Health, & Personal Services)	Help handicapped persons Help friends with their problems Care for elderly persons Work for the Red Cross
Business Contact (Business Sales & Management)	Run for a school club or office Sell things door to door Talk before groups Manage a business meeting
Business Detail (Business Operations)	Check for errors in a theme or report Keep records of personal expenses Operate business machines (duplicator, adding machine, dictation recorder) Sort, count, and store supplies
Technical (Technologies & Trades)	Repair and refinish furniture Repair a toy Make mechanical drawings Operate electrical, mechanical, or computer equipment
Science (Natural, Social, & Medical Sciences)	Use a microscope Visit a science museum Program a computer to solve math and science problems Prepare an exhibit for a science fair
Creative Arts (Creative & Applied Arts)	Sketch or draw Design fashions, furniture, or car styles Write the words for a song Visit art museums

[a] CPP 8-11 Job Clusters most closely related to scale content are shown in parentheses.

The construction of the CPP 8-11 Ability Scales was guided by the following considerations: (a) the need to limit the time for individual scales so that a variety of abilities could be measured; (b) the need to cover abilities relevant to career guidance and career development; and (c) the need to minimize verbal content where possible. Brief descriptions of the six Ability Scales and a summary of the item characteristics are provided below.

- **Mechanical Reasoning.** Mechanical Reasoning is a 35 item, 13-minute scale designed to assess, in a verbally simple form, the student's familiarity with and understanding of the workings of mechanical devices and the principles governing the movement and interaction of objects. In this respect, it is more similar to the Bennett Mechanical Comprehension Test (1969) than to mechanical performance or tool identification tests. This test measures a type of ability especially relevant to many trade and technical programs as well as occupations such as auto mechanic, engineer, farmer, and lab technician.

- **Numerical Skills.** This 25 item, 15-minute scale was developed to test the student's ability to perform various kinds of basic arithmetic functions such as addition, subtraction, multiplication, and division. It was also designed to test ability to use arithmetic in solving various types of word problems. Mathematicians and accountants clearly need numerical

TABLE 4.12

Representative Items for CPP 8-11 Experience Scales

Scale title	Students are asked to indicate how often they have done activities such as those listed below:
Social Service	Helped settle an argument between two friends Took care of sick or elderly people Helped teach games or sports to young children Worked for a "cause" like fire prevention, ecology, or safety
Business Contact	Sold things like magazines, candy, Christmas cards, door-to-door Ran for a school club or office Sold tickets for activities like a play, sports event, or fun night Promoted a money-making event in school
Business Detail	Operated office machines such as adding or duplicating machines Kept accurate records of my own expenses Developed a system for sorting or storing things Planned a trip using a bus, train, or airplane schedule
Technical	Repaired a toy that wouldn't work Refinished, painted, or stained furniture Took apart a machine to see how it operates Operated a movie projector, tape recorder, or loud speaker system
Science	Used a microscope outside of a class assignment Visited a science, natural history, or historical museum Studied different cloud formations Studied (outside of a class assignment) diseases of humans, animals, or plants
Creative Arts	Sketched people so they could be recognized Wrote a short story or poem outside of a class assignment Visited an art museum Drew or made designs for such things as clothing, buildings, or cars

skills, but persons in occupations such as department store clerk and engineering technician also use these skills.

- **Space Relations.** Eight stacks of blocks are pictured in the Space Relations items and in each stack, 5 blocks are lettered. The student counts the number of blocks touching each lettered block. There are 40 lettered blocks, and 11 minutes are allotted for the scale. The ability to visualize two-dimensional drawings as three-dimensional objects has long been considered important to many kinds of occupations including machinist, commercial artist, architect, and carpenter. Pictured stacks of blocks, similarly, have long been in use as an item format for testing this ability. The Space Visualization Test of the Employer Aptitude Survey (Ruch & Ruch, 1963), the block subtest of the MacQuarrie Test of Mechanical Ability (MacQuarrie, 1925), and the Thurstone battery (Thurstone, 1937), use this item format.

- **Reading Skills.** Reading Skills is a 40 item, 20-minute scale designed to assess both ability to read and understand factual material, and more subtle aspects of comprehension. The scale is composed of short paragraphs on career-related topics, each followed by questions. Early passages deal largely with factual matter; later ones require interpretation and comprehension of more subtle and complex reading matter. Most jobs require some reading although some jobs such as business executive, lawyer, and scientist require more reading ability than others.

- **Language Usage.** This is a 48 item, 8-minute scale developed to measure ability to recognize incorrect and inappropriate uses of the English language such as errors in punctuation, capitalization, and grammar. The scale consists of sentences in which several parts are underlined. The student is to judge whether the underlined part is correct or incorrect. Language usage skills are important in such occupations as secretarial work, teaching, and journalism.

- **Clerical Skills.** This is a 35 item, 6-minute scale. The rate of speed and related accuracy with which clerical tasks are performed is often important for jobs such as file clerk, accountant, and secretary. Thus, this test is speeded to afford a measure of this important aspect of the skill. Tests of clerical ability have typically used verbal or numerical symbols to assess perceptual speed. Symbol matching has often been a common format. However, the CPP 8-11 Clerical Skills Scale deviates from the traditional format to provide a more complicated clerical task involving the ability to follow directions as well as perceptual speed and accuracy. Students are provided with a list of shipments to be sent to cities throughout the country. The list gives the destination of the shipment, the distance the shipment must travel, and the weight of the shipment. From a table giving shipment cost by distance and weight, the student finds the cost of the shipment. Then the shipment cost is converted by another key to an answer to be marked on the answer folder.

Informal Assessment Components

Scores are not provided for the CPP 8-11 assessment components in this category. All are untimed and may be administered informally, but always with supervision. Results are provided in the form of student responses to specific questions which can be reevaluated as students mature.

Career Plans (Unit 2)

The CPP 8-11 unit on career plans asks students to state their first and second occupational preferences, how sure they are that their first job preference will be the same next year, and finally, the greatest amount of education they plan to complete. An indication of a junior or senior high school student's plans in these areas can provide two significant types of information about the student. First, the student's present career outlook and goals are defined and, hence, are open to discussion; and second, a base line from which to determine the direction and amount of change in career plans is established. Although research indicates that expressed choice of occupation has moderate stability through the high school years (Whitney, 1969), the specific plans of many students are likely to change. Hence, this second type of information can be especially useful in helping students understand the nature of their career planning and the direction of their career development. Also, having students think about and then indicate their present career plans is an exercise that can help foster self/career exploration and awareness.

In the CPP 8-11 Career Plans Unit, students are asked to name their first and second occupational preferences and then select the job family appropriate to each from a list that is provided. (Development of the job families is described in a later section on the ACT Occupational Classification System.) Job families on the list are accompanied by several examples of specific occupations. Through an exercise in *Exploring: You and Your Career*, students are encouraged to think about their occupational choices in terms of job families prior to completing the unit. The exercise also provides practice with the questions in the unit. Despite these precautions, however, some students can be expected to associate their occupational choices with inappropriate job families. For this reason, a study of the accuracy of student job family coding was conducted.

Random samples of 20 schools testing 8th graders and 20 schools testing 11th graders were selected from the schools in the national norm group. A systematic random sample was then used to select answer folders for 10 students from each school. Thus, 400 answer folders (200 for 8th graders and 200 for 11th graders) were available for analysis. Since students were told to print their specific occupational preferences on the answer folders, it was possible for a research assistant familiar with the job family structure used in the CPP 8-11 to perform an independent coding of preferences. When there was doubt about the correct job family code for a given occupational preference, two of the researchers who developed the job family structure were consulted.

Agreement between the correct job family codes and the student-selected codes was found in about 85% of the cases for both first and second job preferences. Accuracy among 11th graders (86%) was only slightly higher than for 8th graders (84%). Where agreement was lacking, students usually had identified a job family closely associated with the one they should have selected. In view of these results, student coding of occupational preferences appears to be of sufficient accuracy to justify use of job family data in group summaries, individual screening, and research.

Job Values (Exercise in Exploring*)*

In a comprehensive review of the concept of job values, Zytowski (1970) found that, while the concept has been employed by many researchers, there does not seem to be a universal set of job values which are acceptable to everyone. According to Zytowski, an adequate description of the spectrum of job values requires 12 to 15 values, though factor analysis generally results in 3 to 6 major types of values.

The CPP 8-11 job values items cover several of the more important types of job values cited in the review by Zytowski. They appear as an exercise in *Exploring* in which the student is asked to indicate the relative importance of eight job values by ranking them as most important, second most important, and least important. For many students, this exercise may provide the first opportunity to consider job values in an organized way. It is hoped the exercise will be the stimulus for repeated consideration thereafter. The eight job values are:

(Co-workers)	Working with people I like.
(Independence)	Being my own boss, doing the work as I want with nobody watching over me.
(Interest)	Doing work that I enjoy, that is interesting to me.
(Security)	Having a steady job where I would not be fired.
(Responsibility)	Being responsible for making decisions and for the work of others.
(Pay)	Being well paid for my work.
(Altruism)	Having an opportunity to serve others.
(Status)	Gaining status; having people look up to me.

Working Condition Preferences (Exercise in Exploring)

The setting in which work is performed can also play an important role in student career planning and decision making. The Job Preference Survey, an instrument devised by Long (1952), was based on independent components of work interests related to job activity preferences at nonprofessional levels. Studies using the instrument yielded six bipolar dimensions: Routine-Varied, Indoor-Outdoor, Hazardous-Nonhazardous, Sedentary-Bodily Active, Isolative-Gregarious, Precise-Approximate. In the CPP 8-11 exercise on working conditions, four of these dimensions are rephrased and each is presented as a bipolar pair of working conditions. The student chooses either one or the other of the poles for each dimension. Included are: Indoor Work-Outdoor Work; Working with People-Working Alone; Working at a Variety of Tasks-Working at the Same Task; Doing Physical Labor-Little Physical Labor.

Self-rated Abilities (Exercise in Exploring)

Asking students to rate themselves on a variety of abilities can provide valuable insights into their self-concepts. Another advantage of self-report data is that considerable information, much of it on ability areas not amenable to measurement by tests, can be obtained in a relatively short period of time. For these reasons, self-ratings of ability were used in the CPP 8-11 to compliment the scores obtained on the Ability Scales. Ten types of abilities and related personal characteristics are listed in the "Rating Your Abilities" exercise, found in *Exploring*. For each of these abilities, students are asked to rate themselves, as compared to persons of their own age, on a 4-point scale ranging from "below average" to the "top ten percent." The following ten characteristics are covered:

Artistic Ability (drawing, dancing, playing a musical instrument, writing, painting)

Clerical Ability (keeping neat and accurate records, filing, typing, bookkeeping)

English Ability (writing, understanding literature, using correct grammar)

Math Ability (working arithmetic problems and understanding math reasoning)

Mechanical Ability (working with tools and mechanical objects, fixing things)

Scientific Ability (doing laboratory experiments, understanding scientific principles)

Social Self-Confidence (at ease in a social setting, able to talk easily with people)

Working With People (getting along with others, being agreeable)

Academic Motivation (desire to do well in school, to learn what is taught)

Work Motivation (desire to succeed on a job, to get a job done)

The usefulness of this type of self-rating has been reported in numerous studies. Several studies (Biggs & Tinsley, 1970; Doleys & Renzaglia, 1963; Irvine, 1965; Pervin, 1966; Young, 1954) have shown that students can usefully rate their academic potential. Abe and Holland (1965) indicated that students entering diverse educational majors describe themselves differently in terms of self-estimates. Other research has indicated that students' self-perceptions may be potent determinants of behavior (Holland & Baird, 1968).

Reading Level of CPP 8-11 Assessment Components

The Forbes Readability Formula (Forbes & Cottle, 1953) was used to analyze the reading level of the CPP 8-11 assessment components. The analyses were performed by a reading specialist at the University of Iowa.

The Forbes Formula, the only widely accepted procedure for measuring the readability of printed matter in standardized tests, is applied to a systematic sample of words in the test being analyzed. The "weights" of words exceeding a specific weight, according to the *Thorndike Junior Century Dictionary, Revised Edition* (Thorndike, 1942), are recorded and the total of the weights is divided by the number of words in the sample. This results in the Forbes Index of Readability, which is reported in terms of grade level. The weights assigned to words by the dictionary are based on their relative frequency of occurrence in the English language. Because the dictionary was published more than 30 years ago, a number of words in common usage today (e.g., jet, television) are relatively rare according to the frequency list. Thus, the Forbes Formula may overestimate the difficulty of some words, with the result being reading level estimates that are somewhat high for today's students.

Some tests report only Dale-Chall (1948) reading levels. Hence, for comparative purposes, Dale-Chall estimates were developed for the CPP 8-11. These estimates are based on results for the two procedures when applied to 27 different standardized tests (Forbes & Cottle, 1953). Taken together the Forbes and Dale-Chall data presented in Table 4.13 might be thought of as providing estimates of the upper and lower bounds for CPP 8-11 reading levels. The overall reading level, obtained by averaging the 15 estimates, is about 7.4.

Taken as a whole, the CPP 8-11 reading levels presented in Table 4.13 appear to be satisfactory for the intended group of students. Four of the assessment components warrant further discussion, however. The Exploratory Job Experiences (i.e., Experience Scales) unit inventories a student's involvement in experiences related to activities typical of occupations in each of six occupational clusters while the Vocational Interest Profile records the degree of a student's like or dislike for a number of activities, also typical of occupations in six clusters. For certain clusters, "technical" terms had to be used to describe the activities (e.g., voltmeter, barometric pressure, microscope, technology, duplicating, symphony, puppet, clinic). These terms were the major reason for the relatively high reading levels obtained for these two units through use of the Forbes Formula. Klare (1963), however, has noted that a reader's background determines his experience with special terminology, and hence, its difficulty for him. Students engaging in activities related to these terms, (i.e., manifesting interest in the areas covered) are likely to be familiar with many of these terms.

The Reading Skills and Language Usage Scales also warrant further discussion. The former, of course, is itself a measure of reading level. Hence, readability is not a confounding variable here as it might be on another type of ability measure. The norms distributions for this scale show that it has adequate floor and ceiling for the intended grade group. The Language Usage Scale is at the 10th grade reading level according to the Forbes Index and at the 7.5 grade level according to the Dale-Chall Index. Since the scale was intended to cover written communications, scores must depend somewhat on the ability to read. However, considering the mean level of the two formulas on this unit (8.8) as well as the emphasis on the proper use of language rather than on comprehension, the reading level of the Language Usage Scale seems appropriate.

TABLE 4.13

Summary of Reading Levels for the CPP 8-11

	Reading grade level	
CPP 8-11 assessment components	*Forbes Index*	*Dale-Chall Index*
Exploratory Job Experiences	9	6.5
Career Plans	8	5.5
Vocational Interest Profile	10	7.5
Numerical Skills	7	4.5
Reading Skills	9	[a]
Language Usage	10	7.5
Mechanical Reasoning	8	5.5
All directions	7	7

Note.—These reading levels apply to Form 1. Reading levels are identical for Form 2 (intended for 11th graders) except for the Reading Skills Scale which has a Forbes Index value of 11. No reading analysis was done for the Space Relations or Clerical Skills Scales as both require very little reading.

[a] Dale-Chall estimate not appropriate.

RELIABILITY AND RELATED SCALE CHARACTERISTICS

In Part 2 of this handbook, CPP 8-11 assessment components were described as representing the "wideband approach" to assessment (Cronbach & Gleser, 1957). Since wideband assessment involves many different kinds of measures, each must be relatively short in order to keep the total testing time within reasonable limits. As a result, there is some sacrifice in the accuracy of measurement and, hence, modest levels of reliability can be expected. The CPP 8-11 reliability data presented in the following sections should be viewed in the context of the wideband approach to career guidance assessment that was taken.

Estimates of Reliability

An important characteristic of any measure is its reliability, that is, its consistency and accuracy of measurement. Several different methods for determining reliability are available. Each method considers different sources of error in test scores such as (a) variation in the individual's responsiveness to test items at a particular moment in time; (b) variation in the individual from time to time; and (c) variations in the samples of tasks that could be chosen to represent an area of behavior. Internal estimates of reliability account for the first and third sources of error while the test-retest correlations account for the first and second sources. Internal estimates of reliability, however, are inappropriate for speeded tests.

Both internal estimates of reliability and test-retest correlations are provided below for CPP 8-11 measures which are essentially unspeeded. Only test-retest correlations are provided for those measures which are essentially speeded in nature.

Internal Estimates of Reliability

Internal estimates of reliability for the CPP 8-11 scales were obtained for a randomly selected 10% sample of the 28, 298 norm group students in grades 8 and 11.[2] The means and standard deviations for these samples are shown with the weighted means and standard deviations of the norm group in Table 4.14. These data suggest that the 10% sample is reasonably representative of a nationwide cross section of students in grades 8 and 11.

Internal estimates of reliability, means, standard deviation, and other information related to the scale characteristics of the CPP 8-11 measures are presented in Table 4.15. Coefficient alpha (Cronbach, 1951) was used as an internal estimate of reliability for the interest and experience scales while the Kuder-Richardson Formula 20 (KR-20) was used for the ability measures. The KR-20 formula is a special application of coefficient alpha for tests having right and wrong answers.

Sex differences in the reliability of the ability measures were examined by calculating KR-20 estimates of reliability separately for 11th grade males and females. With the exception of the Mechanical Reasoning Scale, the reliability indices for males and females differed by less than .04. For the Mechanical Reasoning Scale, the reliability for males was .84 and for females it was .73. Since the results for the males and females were highly similar across most of the scales, only the combined group information is presented here for grades 8 and 11.

Internal estimates of reliability for the Ability Scales, which were constructed as wideband measures, range from moderate (.77 for Mechanical Reasoning) to high (.91 for Space Relations). As described in the section on development, the Space Relations and Language Usage Scales were revised subsequent to the national norming. The estimates reported for these scales are based on the equating samples rather than the 10% sample previously described. An internal estimate of reliability was not calculated for the Clerical Skills Scale since it is highly speeded.

The internal estimates of reliability (coefficient alpha) for the Interest and Experience Scales are generally quite respectable for 15-item scales. Median internal estimates of reliability for the six VIP Scales were .89 and .90 for grades 8 and 11. For the six Experience Scales, the median values were .77 and .79.

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[2] Grade 9 reliabilities were also calculated but have been omitted from this discussion because of the high degree of similarity with the reliabilities for grades 8 and 11.

TABLE 4.14

A Comparison of the CPP 8-11 10% Sample with the Weighted Results for the Total Norm Group on Ability, Interest, and Experience Scales

CPP 8-11 Scales	8th Grade				11th Grade			
	Norm group (N=8,822)		10% sample (N=881)		Norm group (N=9,307)		10% sample (N=930)	
	Mean	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*	*Mean*	*S.D.*
Abilities								
Space Relations[a]	19.6	8.3	19.6	8.2	25.0	8.8	24.6	8.7
Reading Skills	23.0	8.3	22.4	8.3	24.5	8.4	25.3	8.3
Clerical Skills	19.4	9.2	18.9	9.0	25.9	8.1	26.5	8.0
Numerical Skills	13.5	4.9	13.4	4.8	14.8	5.8	14.7	5.7
Language Usage[a]	29.4	7.0	29.0	6.7	33.8	6.9	34.2	6.8
Mechanical Reasoning	16.2	5.8	16.3	5.7	19.7	6.7	19.8	6.5
Interests								
Social Service	3.4	0.8	3.3	0.9	3.3	0.8	3.3	0.8
Business Contact	2.7	0.7	2.7	0.7	2.7	0.6	2.7	0.6
Business Detail	2.7	0.8	2.7	0.8	2.7	0.8	2.7	0.7
Technical	2.9	0.9	2.9	1.0	2.9	0.9	2.8	0.9
Science	2.9	0.9	2.8	0.9	2.7	0.9	2.7	0.9
Creative Arts	3.2	0.9	3.2	0.9	3.2	0.8	3.2	0.8
Experiences								
Social Service	1.9	0.4	1.9	0.4	1.9	0.4	1.9	0.4
Business Contact	1.8	0.4	1.8	0.3	1.8	0.4	1.8	0.3
Business Detail	1.7	0.4	1.7	0.4	1.7	0.4	1.8	0.3
Technical	1.8	0.5	1.8	0.5	1.8	0.5	1.8	0.5
Science	1.7	0.4	1.7	0.4	1.6	0.4	1.6	0.4
Creative Arts	1.9	0.4	1.9	0.4	1.8	0.4	1.8	0.4

Note.—Scores for the 10% sample are included in the total norm group data. Score ranges are shown in Table 4.15.

[a] Values reported for the revised scales are estimates based on data from the equating study described on page 40.

Test-Retest Reliability

The internal estimates of reliability reported in the previous section do *not* take into consideration the effects of changes that may occur in the individual from day-to-day; for example, changes in the individual's speed of work, mental alertness, motivation, recall of information, etc. Test-retest estimates of reliability account for these sources of error in test scores and as a result they are usually somewhat lower than internal estimates of reliability.

Several test-retest reliability studies were conducted using the CPP 8-11 Ability, Interest, and Experience Scales. In each study, there was an interval of about 9 weeks between the first and second administration of the CPP 8-11 Scales. (Thus, these studies might also be described as short-term stability studies.) For the Ability and Interest Scales, 365 9th grade students and 163 11th grade students from four schools were tested. For the Experience Scales 445 9th graders and 340 11th graders from four additional schools were involved. Eight norm group schools participated in these studies—four at the 9th grade and four at the 11th grade. While these schools were not randomly selected, they were chosen to be typical of schools in different types of locations, e.g., large city, fringe area of large city, and rural areas. The schools chosen were in Florida, Idaho, Pennsylvania, Texas, Washington, Ohio, and Maryland.

Results of the test-retest reliability studies are presented in Table 4.16. The sample means show that the students in these samples were similar to those of the entire norm group although the samples tended to be more homogeneous. It will be recalled that norm group results

TABLE 4.15

CPP 8-11 Reliabilities and Related Characteristics for Grades 8 and 11, Males and Females Combined

			Grade 8 (N=881)				**Grade 11 (N=930)**			
CPP 8-11 Scales	**Number of items**	**"Chance" score**	r_{11}	*Mean*	*S.D.*	*Stanine SEM*[a]	r_{11}	*Mean*	*S.D.*	*Stanine SEM*[a]
Abilities										
Space Relations[b]	40	10	.91	19.6	8.2	0.6	.91	24.6	8.7	0.6
Reading Skills[c]	40	10	.89	22.4	8.3	0.7	.90	25.3	8.3	0.6
Clerical Skills	35	7	d	18.9	9.0	—	d	26.5	8.0	—
Numerical Skills[c]	25	5	.82	13.4	4.8	0.8	.88	14.7	5.7	0.7
Language Usage[b]	48	24	.85	29.0	6.7	0.8	.85	34.2	6.8	0.8
Mechanical Reasoning	35	11.7	.77	16.3	5.7	1.0	.83	19.8	6.5	0.8
Interests										
Social Service	15	e	.90	3.3	.9	0.6	.91	3.3	.8	0.6
Business Contact	15	e	.84	2.7	.7	0.8	.81	2.7	.6	0.9
Business Detail	15	e	.88	2.7	.8	0.7	.88	2.7	.7	0.7
Technical	15	e	.92	2.9	1.0	0.6	.92	2.8	.9	0.6
Science	15	e	.90	2.8	.9	0.6	.91	2.7	.9	0.6
Creative Arts	15	e	.88	3.2	.9	0.7	.89	3.2	.8	0.7
Experiences										
Social Service	15	e	.81	1.9	.4	0.9	.82	1.9	.4	0.8
Business Contact	15	e	.71	1.8	.3	1.1	.74	1.8	.3	1.0
Business Detail	15	e	.76	1.7	.4	1.0	.74	1.8	.3	1.0
Technical	15	e	.85	1.8	.5	0.8	.89	1.8	.5	0.7
Science	15	e	.79	1.7	.4	0.9	.82	1.6	.4	0.8
Creative Arts	15	e	.73	1.9	.4	1.0	.76	1.8	.4	1.0

[a] SEM = standard error of measurement reported in stanine units.

[b] Values reported for this revised scale are estimates based on data from the equating study described on page 40.

[c] Two sets of items were used for these scales; items on the grade 11 scale are slightly more difficult than those on the grade 8 scale.

[d] Internal consistency estimate of reliability is not appropriate due to the speeded nature of the test.

[e] Chance scores do not apply to the Interest and Experience Scales. Possible score range is 1.0 to 5.0 for interests and 1.0 to 3.0 for experiences.

were scaled to have a stanine mean of five with a standard deviation of two. The samples involved in the test-retest studies obtained stanine means that varied around five with standard deviations of somewhat less than two. With the exception of the Space Relations Scale, all test score differences between the first and second administration were less than one-third of a standard deviation, indicating little or no practice effect.

For the 9th grade sample, the test-retest correlations for the Ability Scales ranged from .59 to .80 with the median being approximately .70. For the 11th grade sample the test-retest correlations for these scales ranged from .75 to .87 with a median of approximately .83. When considered in the context of the 9 weeks time interval involved, these results indicate a modest level of test-retest reliability, as is appropriate for wideband measures.

Test-retest correlations for the six Interest Scales ranged from .70 to .85 with a median of .80 for the 11th grade sample. Similar results were found for the Experience Scales. Considering the relatively short lengths of the Interest and Experience Scales (15 items per scale) and the time interval involved (9 weeks), these correlations indicate a fairly substantial degree of reliability across the two administrations.

TABLE 4.16

CPP 8-11 Test-Retest Reliabilities for Grades 9 and 11, Males and Females Combined

	Grade 9 (N=365)						**Grade 11 (N=163)**					
	Initial test		Retest			Stanine	Initial test		Retest			Stanine
Scale	*Mean*	*S.D.*	*Mean*	*S.D.*	r_{12}	SEM[a]	*Mean*	*S.D.*	*Mean*	*S.D.*	r_{12}	SEM[a]
Abilities												
Space Relations	5.8	1.8	6.4	1.8	.68[b]	1.1	5.3	1.8	6.1	2.0	.81[b]	0.9
Reading Skills	5.7	1.8	5.9	2.1	.67	1.2	5.0	2.0	5.4	2.1	.85	0.8
Clerical Skills	5.4	1.7	5.5	1.8	.59	1.3	4.0	1.6	4.6	1.8	.75	1.0
Numerical Skills	5.5	2.0	5.6	2.1	.76	1.0	4.9	2.1	5.0	2.1	.84	0.8
Language Usage	5.5	1.8	5.5	1.9	.73[b]	1.0	5.1	2.1	5.3	2.1	.80[b]	0.9
Mech. Reasoning	5.4	1.9	5.9	1.9	.80	0.9	5.3	2.0	5.8	2.1	.87	0.7
Interests												
Social Service	5.0	1.8	5.0	1.9	.76	1.0	5.3	1.9	5.4	2.1	.81	0.9
Business Contact	5.2	1.8	5.3	1.8	.70	1.1	5.3	2.0	5.7	2.0	.78	0.9
Business Detail	5.2	1.8	5.2	1.9	.77	1.0	5.0	2.0	5.4	2.2	.80	0.9
Technical	5.3	1.8	5.6	1.9	.74	1.0	5.6	1.8	5.8	1.9	.73	1.0
Science	5.1	1.8	5.2	1.9	.82	0.8	5.5	2.0	5.7	2.1	.85	0.8
Creative Arts	5.3	1.8	5.4	1.8	.79	0.9	4.9	1.9	5.3	2.0	.80	0.9
Experiences												
Social Service	1.8	.4	1.8	.4	.75	1.0	1.9	.4	1.9	.4	.76	1.0
Business Contact	1.8	.3	1.8	.4	.70	1.1	1.8	.4	1.8	.4	.76	1.0
Business Detail	1.6	.4	1.7	.4	.70	1.1	1.7	.4	1.8	.4	.72	1.1
Technical	1.8	.5	1.8	.5	.86	0.8	1.9	.5	1.9	.5	.87	0.7
Science	1.6	.4	1.6	.4	.71	1.1	1.7	.4	1.7	.4	.78	0.9
Creative Arts	1.8	.4	1.8	.4	.77	1.0	1.7	.4	1.8	.4	.78	0.9

Note.—Data for the Experience Scales involved separate samples. In grade 9, N=445; in grade 11, N=340.

[a] SEM = standard error of measurement reported in stanine units.

[b] Test-retest reliabilities for the scale are based on data obtained prior to revisions in the scale. Data on the revised scale were not available at printing.

Standard Errors of Measurement for the CPP 8-11 Measures

The CPP 8-11 Student Report provides ability and interest results in the form of bands that are three stanines wide. Standard errors of measurement (SEMs) for CPP 8-11 measures are also presented in stanine units so that comparisons can be made with these stanine bands. SEMs based on the internal estimates of reliability and the test-retest correlations are presented in Tables 4.15 and 4.16. As expected, the SEMs based on internal estimates of reliability are generally smaller than the SEMs based on the test-retest correlations. The SEMs range from .6 to 1.1 with only a few exceptions involving grade 9 test-retest correlations. All SEMs are well within the 3-stanine band used in reporting ability and interest scores. Hence, these bands have a high probability of including a student's true scores on the measures.

Degree of Speededness

Data on the speededness of CPP 8-11 Ability, Interest, and Experience Scales are presented in Table 4.17 for grades 8 and 11. These data are based on the 10% norm group samples described previously. As shown in the table, all six of the CPP 8-11 Ability Scales appear to be at least slightly speeded. The percentage of 8th grade students who completed at least 90% of the items ranges from 29% for the Clerical Skills Scale to 92% for the Numerical Skills Scale. The data suggest that the Clerical Skills Scale is quite speeded, while the Language Usage, Mechanical Reasoning, and Numerical Skills Scales are basically power types of measures. The Reading Skills Scale, which covers elements of both reading comprehension and reading speed, is somewhat speeded, as intended.

For 11th graders, the Clerical Skills Scale was also speeded. The Space Relations, Numerical Skills, Language Usage, and Mechanical Reasoning Scales are essentially power measures at this grade level.

A large percentage (more than 90%) of both 8th and 11th grade students answered 90% of the items on the six Interest and Experience Scales. Hence, the time limits for these scales appear to be quite adequate.

TABLE 4.17

Degree of Scale Speededness for Grades 8 and 11, Males and Females Combined

		Percent Answering			
		Grade 8 (N=881)		Grade 11 (N=930)	
Scale	**Number of Items**	*Final item*	*90% items*[a]	*Final item*	*90% items*[a]
Abilities					
Space Relations	40	74[c]	80[c]	80[c]	84[c]
Reading Skills	40[b]	70	75	73	78
Clerical Skills	35	25	29	47	56
Numerical Skills	25[b]	84	92	80	86
Language Usage	48	75[c]	82[c]	87[c]	92[c]
Mechanical Reasoning	35	83	87	86	91
Interests					
Social Service	15	92	95	97	98
Business Contact	15	92	94	96	98
Business Detail	15	92	94	96	98
Technical	15	92	94	97	98
Science	15	92	95	97	99
Creative Arts	15	92	95	97	99
Experiences					
Social Service	15	93	97	98	99
Business Contact	15	93	97	98	99
Business Detail	15	93	97	98	99
Technical	15	93	97	98	99
Science	15	94	97	98	99
Creative Arts	15	94	97	98	99

[a] Number of items considered is the truncated value of .90(n), where n = number of items on scale.

[b] Two sets of items were used on these scales; one set for grades 8-10, and a slightly more difficult set for grade 11.

[c] Values for this revised scale are estimates based on data from the equating study described on page 40.

Floor and Ceiling

Information regarding the adequacy of the floor and ceiling of the CPP 8-11 Ability, Interest, and Experience Scales is presented in Table 4.15. The "chance" scores listed in the table are the scores to be expected if students randomly mark their responses. Additional data on the adequacy of the floor and ceiling of the CPP 8-11 measures are provided by the norm group frequency distributions in Appendix F.

All of the Ability Scales show adequate floor and ceiling at each grade level. For four of the Ability Scales the 8th grade means are more than one standard deviation above the "chance" level scores. For the other two scales, the means are slightly less than one standard deviation above the "chance" level scores. The difference between the maximum scores (or "ceiling") and the mean ability scores for grade 11 is about one standard deviation, indicating more than adequate ceiling for these measures.

For the Interest and Experience Scales, chance scores are not appropriate. Scores on the Interest Scales range from 1.0 to 5.0. At each grade level, the mean is approximately two standard deviations above the lowest possible score and two standard deviations below the highest possible score, thus indicating an adequate distribution of scores across the entire possible range. Similar results were obtained for the six Experience Scales.

VALIDITY

Various types of information are relevant to judgments of the usefulness of tests and inventories in career guidance. Some of this information has already been presented in (a) the discussion of the general rationale underlying CPP 8-11 assessment components (Part 1); (b) the discussion of the wideband approach to assessment taken in the Career Planning Program (Part 2); and (c) the description of the rationale and content of specific CPP 8-11 assessment components earlier in this part of the handbook. Each of these types of information should help readers judge whether the CPP 8-11 covers characteristics of students important for self/career exploration. Thus, this information is relevant, at a general level, to the content validity of CPP 8-11 assessment components.

More directly relevant to uses of the Career Planning Program, however, is evidence bearing on the criterion-related validity and construct validity of the measures. This evidence is summarized in the sections that follow. Because CPP 12-13 assessment components are very similar to CPP 8-11 components, validity data for the former are presented along with CPP 8-11 data. In addition, research on the recently developed ACT Interest Inventory is reported because of its similarity to the CPP 8-11 Vocational Interest Profile. Finally, several validation studies currently underway are described, and research reports carrying a fuller description of the validation studies are cited.

Criterion-Related Validity

Three types of criterion-related validity evidence are available for Career Planning Program measures:

1. The effectiveness of the measures in predicting the performance of students enrolled in various types of academic, vocational, and technical courses.
2. The effectiveness of the measures in differentiating among "successful and satisfied" students enrolled in various vocational-technical programs, transfer programs, and 4-year college majors.
3. The effectiveness of the measures in differentiating among students grouped into job families according to their occupational preferences.

Prediction of Course Performance: CPP 8-11

The effectiveness of CPP 8-11 Ability Scales in predicting the course performance of high school students was studied for a group of 969 9th grade students and 960 11th grade students attending eight norm group schools. The general characteristics of these schools are summarized in Table 4.18.

Correlations with Grades in Specific Courses. Correlations between CPP 8-11 Ability Scales and grades in 73 specific courses are presented in Tables 4.19 and 4.20. To facilitate the assimilation of these results, courses have been organized according to the following seven categories with the number in parentheses indicating the number of courses per category: language arts (18); science and math (22); social studies (8); business/commercial (10), industrial arts, etc. (8); home economics (5); and "other" (2). Median CPP 8-11 Ability Scale correlations are provided for each of these categories. Generally, the median correlations are highest for Reading Skills, Numerical Skills, and Language Usage, as one would expect. However, the Mechanical Reasoning and Space Relations Scales do relatively well in courses in the industrial arts category, especially when considered in the context of the correlations previously reported for this area (Ghiselli, 1966; Prediger, Waple, & Nusbaum, 1968). Since these scales do not correlate highly with the other CPP 8-11 Ability Scales, they should prove to be useful predictors in multiple regression equations. The usefulness of the Clerical Skills Scale is less certain, however. The variation in correlations from school to school for all scales emphasizes the need for local validity studies.

The correlations discussed above involve CPP 8-11 Ability Scales considered *separately*. However, these relatively short, wideband measures should ideally be used in *combination*. Correlations resulting from two procedures for combining Ability Scale scores are also presented in Tables 4.19 and 4.20. As with the analyses for individual scales, stanines based on national norms were used in the analyses for scale combinations. These analyses were performed for the 24 courses for which 100 or more students had scores on all six Ability Scales.

The first procedure for combining the Ability Scales consisted of adding the stanine scores for the scales considered on a priori bases to be most relevant to each of the course categories. This procedure results in a simple composite score that can be easily calculated by counselors or clerical help. The scales used to form this composite are listed in the footnotes to the tables. In 23 of 24 analyses, only two scales were involved.

The second procedure for combining scales involved all six Ability Scales in a multiple regression analysis. The resultant multiple correlation coefficient was adjusted for "shrinkage" via a formula provided by Olkin and Pratt (1958).

As shown in Tables 4.19 and 4.20, the two procedures for combining CPP 8-11 Ability Scales often resulted in an appreciable increase over the highest zero-order correlation obtained for the scales. The median correlations across the 24 courses were .59 for the stanine composite scores and .63 for the multiple regression procedure, values that are surprisingly similar considering the enormous difference in statistical sophistication represented by the two procedures. The correlations between stanine composite scores and course grades were lower than the highest zero-order correlation for a course in only 4 of 24 instances. In several instances, there were substantial increases in level of correlation. The median correlation of .59 obtained via the simple and easy-to-apply stanine composite procedure provides encouraging evidence of the usefulness of CPP 8-11 Ability Scales in predicting course performance.

Correlations with Overall GPA. The correlations between the CPP 8-11 Ability Scales and the overall GPA at each of the eight norm group schools are

TABLE 4.18

Overview of Schools Participating in Grade Prediction Studies

School	Size of community	State	Grade	Size of grade	Date tested	Date for grades
A	Suburb of large city	Pennsylvania	11	136	2/73	Spring term, 1973
B	Large city	Illinois	11	300	2/73	Spring term, 1973
C	Medium-sized city	Pennsylvania	11	165	2/73	Spring term, 1973
D	Suburb of large city	California	11	436	2/73	Spring term, 1973
E	Medium-sized city	Nevada	9	400	3/73	Spring term, 1973
F	Small city	Idaho	9	125	2/73	Spring term, 1973
G	Medium-sized city	Michigan	9	360	3/73	Spring term, 1973
H	Small city	Minnesota	9	290	3/73	Spring term, 1973

TABLE 4.19

Correlations between CPP 8-11 Ability Scales and Course Grades (Part 1)

Subject	School	Grade	N	CPP 8-11 Ability Scales: *Space Relations*	*Reading Skills*	*Clerical Skills*	*Numerical Skills*	*Language Usage*	*Mechanical Reasoning*	Scale combinations: *Stanine composite*^{a}	R^b
Language Arts											
(Median Correlation)				(15)	(47)	(27)	(40)	(43)	(07)		
English	A	11	125	28	59	22	54	64	08	69	71
American Literature	B	11	85	23	45	28	40	41	00		
English III (Advanced)	C	11	74	07	26	12	33	32	14		
English III	C	11	63	11	49	16	32	29	16		
English Literature	D	11	388	08	37	24	33	32	-02	39	45
Language Arts I	E	9	59	20	34	58	33	16	02		
Language Arts II	E	9	157	19	31	16	35	35	03	41	42
Language Arts III	E	9	59	-15	33	21	28	17	-02		
English I	F	9	103	-01	53	47	47	46	14	58	66
English I	G	9	253	17	67	41	56	57	28	70	73
English I	H	9	261	32	76	44	67	69	21	80	82
Foreign Language	A	11	78	36	67	24	63	65	19		
Foreign Language	D	11	215	08	38	26	39	33	-06	40	50
Spanish	G	9	116	19	59	35	53	45	26	59	64
French	G	9	26	13	54	63	65	64	39		
Foreign Language	H	9	72	22	52	36	58	53	05		
Film Study	B	11	73	02	13	25	26	35	-02		
Mass Media	B	11	51	-11	31	29	08	44	05		
Science & Math											
(Median Correlation)				(21)	(40)	(33)	(49)	(37)	(14)		
Math III	A	11	117	28	42	13	43	35	07	46	46
Algebra IV	B	11	41	25	-10	09	16	06	-12		
Algebra II	C	11	42	10	26	13	54	37	18		
Algebra III-Trig	D	11	180	15	26	24	43	41	09	40	48
Refresher Math	E	9	66	20	12	42	22	07	17		
Pre-Algebra	E	9	140	18	26	05	40	25	14	38	39

Algebra I	E	9	64	01	33	-08	37	32	-06		
Algebra	F	9	68	21	50	40	56	43	13		
Elementary Algebra	F	9	49	23	30	39	28	56	03		
Algebra I	G	9	236	08	45	33	58	40	19	59	62
Math	H	9	122	21	49	46	58	35	06	62	66
Algebra I	H	9	134	19	38	33	59	35	11	59	64
Science	A	11	92	29	49	33	62	57	19		
Science	E	9	69	23	29	35	44	36	10		
Science I	G	9	107	36	64	44	55	49	30	66	67
Science I	H	9	258	37	73	38	66	63	34	76	78
Chemistry	C	11	58	18	43	00	63	31	39		
Chemistry	D	11	186	13	08	12	31	20	13	23	28
Physical Science	D	11	37	36	47	23	20	41	21		
Physical Science	F	9	50	25	56	54	65	49	27		
Physical Science	G	9	27	34	55	65	71	65	34		
Biology	D	11	55	08	18	20	19	13	02		
Social Studies											
(Median Correlation)				(21)	(55)	(23)	(44)	(42)	(12)		
Social Studies III	A	11	124	28	57	20	52	47	01	59	64
U.S. History II	B	11	208	15	28	20	31	30	03	35	35
World Cultures	C	11	127	26	58	22	55	47	11	65	65
History III	D	11	402	17	39	25	35	33	13	43	44
Social Science	E	9	215	24	59	24	52	39	22	60	60
Social Studies	H	9	260	29	73	42	61	64	17	73	78
Nature of Man	B	11	29	06	52	40	24	44	23		
Child Development	B	11	28	-26	18	01	00	17	-08		

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[a] The stanine composite scores were formed by adding stanine scores as follows: language arts category—Reading Skills and Language Usage; science and math category and social studies category—Reading Skills and Numerical Skills.

[b] Unbiased estimate of true multiple correlation coefficient (Olkin & Pratt, 1958) based on all six CPP 8-11 Ability Scales (i.e., "shrunken R").

TABLE 4.20

Correlations between CPP 8-11 Ability Scales and Course Grades (Part 2)

				CPP 8-11 Ability Scales						Scale combinations	
Subject	**School**	**Grade**	**N**	*Space Relations*	*Reading Skills*	*Clerical Skills*	*Numerical Skills*	*Language Usage*	*Mechanical Reasoning*	*Stanine composite*[a]	*R*[b]
Business/Commercial											
(Median Correlation)				(17)	(41)	(27)	(39)	(42)	(05)		
Typing	B	11	45	22	27	06	53	53	12		
Typing	C	11	51	13	13	09	36	39	-19		
Typing	D	11	68	08	12	16	03	24	-10		
Typing	E	9	149	30	56	18	54	42	22	51	59
Typing	F	9	73	01	47	49	51	42	19		
Shorthand I	C	11	39	15	39	23	38	45	18		
General Business	E	9	36	47	42	54	39	49	23		
General Business	F	9	27	18	65	33	35	57	-02		
General Business	H	9	29	07	62	30	42	37	-04		
Accounting-Marketing	D	11	40	28	40	34	27	19	-04		
Industrial Arts, etc.											
(Median Correlation)				(29)	(30)	(31)	(37)	(21)	(30)		
Industrial Arts	C	11	26	31	14	17	16	-02	39		
Industrial Arts II	E	9	58	28	19	30	15	09	24		
Industrial Arts I	F	9	58	-02	17	12	10	23	16		
Shop	H	9	88	46	67	55	58	62	49		
Wood Technology	G	9	29	06	41	43	30	19	-04		
Drafting	C	11	33	58	55	17	58	43	46		
General Drafting	G	9	26	09	27	45	55	-10	23		
Technical Drawing	D	11	67	30	33	32	44	29	36		
Home Economics											
(Median Correlation)				(32)	(58)	(29)	(62)	(52)	(44)		
Home Science	D	11	94	14	23	06	30	17	11		
Home Economics II	E	9	29	32	58	25	65	55	18		
Homemaking I	F	9	44	16	53	55	68	52	44		
Homemaking I	G	9	44	57	64	54	46	58	48		
Home Economics	H	9	37	34	67	29	62	48	60		
Other											
Art I	G	9	84	10	39	29	18	39	11		
Agriculture	H	9	37	25	60	11	47	43	41		

[a] The stanine composite scores were formed by adding stanine scores as follows: business/commercial category—Clerical Skills, Numerical Skills, and Language Usage.

[b] Unbiased estimate of true multiple correlation coefficient (Olkin & Pratt, 1958) based on all six CPP 8-11 Ability Scales (i.e., "shrunken R").

presented in Table 4.21. The Reading Skills, Language Usage, and Numerical Skills Scales are again the best predictors, with median correlations ranging in the .50s. Median correlations obtained using the stanine composite scores and the multiple regression procedure were .63 and .64, respectively. All of these values compare quite favorably with the correlations reported for other ability tests, especially in view of the wideband approach to guidance assessment represented by the CPP 8-11.

Prediction of Course Performance: CPP 12-13

Data concerning the predictive validity of the CPP 12-13 ability measures, as reported in the *Handbook for the ACT Career Planning Program* (ACT, 1972), are summarized here to indicate the extent to which these measures are valid predictors of grades in post-high school vocational-technical and transfer programs. The first-term grades for approximately 16,700 students from nearly 100 community colleges and vocational-technical schools were used as criteria in the study. Students in the sample were enrolled in 16 vocational-technical program areas and 2 academic, transfer program areas.

The prediction of performance in vocational-technical programs can be a difficult problem. Sample sizes are often quite small and there is considerable diversity among the programs and, to a lesser extent, across similar programs in different institutions. Thus it is inappropriate to combine samples from different institutions or programs. For this reason, the CPP 12-13 prediction system uses a Bayesian procedure developed by Jackson, Novick, and Thayer (1971). This system allows for differences in program content and grading standards across institutions while using information from similar educational programs to improve the prediction in programs for which sample sizes are small.

Prior to application of the Bayesian procedure, the zero-order correlations between the seven CPP 12-13 Ability Scales and the grade criteria were examined for the three institutions with the most students in each program. Several trends in program correlations were discernible. Generally, the Ability Scales were better predictors in programs for which scale content was consistent with the content of the programs. For example, the quantitative measures were usually most effective in science and technical fields and Mechanical Reasoning was better in trades fields. Reading Skills, on the other hand, was related to grades in most fields, as one would expect. Numerical Computation, Mathematics Usage, and Reading Skills were most frequently the best predictors, followed by Clerical Skills and Mechanical Reasoning. Space Relations and Nonverbal Reasoning were of lesser value for most programs, although each was an effective predictor in at least a few of the programs (e.g., Space Relations for drafting and machine work, Nonverbal Reasoning for computer programming and secretarial science).

TABLE 4.21

Correlations between CPP 8-11 Ability Scales and Overall GPA

			CPP 8-11 Ability Scales						**Scale combinations**	
School	**Grade**	**N**	*Space Relations*	*Reading Skills*	*Clerical Skills*	*Numerical Skills*	*Language Usage*	*Mechanical Reasoning*	*Stanine composite*[a]	*R*[b]
A	11	125	30	61	23	59	59	07	70	72
B	11	253	20	35	21	35	44	06	45	46
C	11	138	29	58	20	60	50	14	66	66
D	11	416	17	44	34	45	45	02	54	58
E	9	246	28	52	31	54	40	17	57	57
F	9	119	08	49	46	51	51	18	60	62
G	9	286	23	61	45	61	53	29	70	70
H[c]	9	262	35	77	50	71	69	22	83	84
Median			26	55	33	57	51	16	63	64

[a] The stanine composite scores were formed by adding stanine scores for the following scales: Reading Skills, Numerical Skills, and Language Usage.

[b] Unbiased estimate of true multiple correlation coefficient (Olkin & Pratt, 1958) based on all six CPP 8-11 Ability Scales (i.e., "shrunken R").

[c] School H reports a very heterogeneous student population with respect to ability. This is confirmed by ability scale and grade distributions for the school.

The first step in applying the Bayesian methodology in the CPP 12-13 prediction system was the selection of predictor variables. Because of the small sample involved, no more than three variables were used as predictors for a single program. These variables were selected on the basis of their logical relation to a program, empirical evidence that the variables were related to success in similar programs at several of the institutions in the sample, and the relative independence of the variables within a program.

A Bayesian estimate of the multiple correlation between the Ability Scales and first-term grades (Novick, Jones, & Cole, 1973), an estimate which simultaneously uses the information from all institutions offering the program, is given in Table 4.22. The estimated multiple correlations range from .33 to .66. Multiple correlations of this magnitude compare very favorably with values historically obtained in predicting success in job training and vocational-technical programs and even compare favorably with the multiple correlations commonly found for predictions in academic programs. Since the prediction equations were constructed using regression weights derived from information on numerous samples, the Bayesian estimates are not subject to the usual amount of shrinkage, and correspond to the level of correlation expected upon cross validation (Novick, Jackson, Thayer, & Cole, 1972).

Differentiation of Educational Programs: CPP 12-13

As previously noted, a second type of criterion-related validity evidence available for Career Planning Program measures is their effectiveness in differentiating among students enrolled in various vocational, technical, and transfer programs. For example, one would expect substantial differences in the interests, abilities, and working condition preferences of community college and vocational-technical students enrolled in such programs as Auto Mechanics, Electrical Engineering Technology, Accounting, and Police Science. If students in these and other programs obtain similar scores on the various sections of the CPP 12-13, serious questions about criterion-related validity could be raised.

Group differences on the CPP 12-13 measures were examined (a) by comparing group profiles on the ability and interest measures; (b) through chi-square analyses of contingency table data; and (c) via discriminant analyses. The results of these studies, presented in the *Handbook for the ACT Career Planning Program* (ACT, 1972), are summarized here.

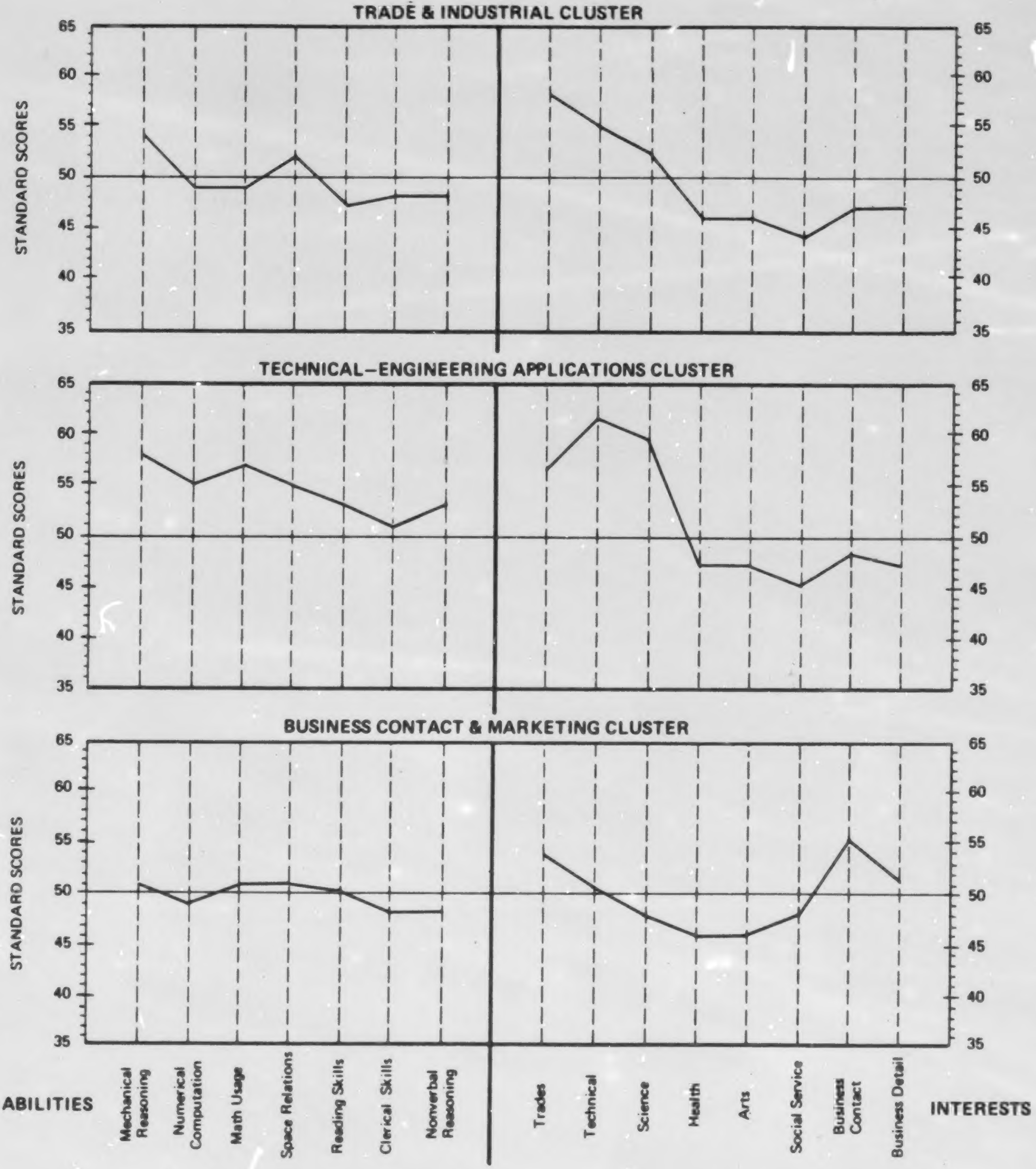
Group profile differences. Figure 4.1 presents group profile data for men enrolled in three broad clusters of vocational-technical programs. Program differences on

TABLE 4.22

Multiple Correlations of Selected Career Planning Profile Predictors with Grades

Educational program area	Number of institutions	Total students	Predictor variables	Bayesian estimate of R
Auto Mechanics	20	764	MR, NC, RS	.42
Drafting	17	428	MR, NC, RS	.45
Machine Work	10	163	MR, NC	.59
Other Trades	24	1,398	MR, NC, RS	.38
Electrical Engineering Technology	27	824	MR, MU, RS	.45
Other Technical	19	369	MU	.37
Science (Transfer)	10	235	MU, RS	.45
Dental Assisting	12	307	NC, RS	.58
Nursing-Practical	19	475	NC, RS	.51
Nursing-Registered	18	583	NC, RS	.35
Other Health	16	529	NC, RS	.50
Police Science	8	209	MR, RS	.43
Business & Marketing	12	199	NC, RS	.66
Business Administration (Transfer)	12	306	NC, RS	.33
Accounting	14	291	NC, RS	.52
Computer Programming	12	258	CS, MU	.45
Data Processing	18	358	NC, RS	.50
Secretarial Science	26	914	NC, RS	.46

Note.—MR = Mechanical Reasoning; CS = Clerical Skills; NC = Numerical Computation; MU = Mathematics Usage; and RS = Reading Skills.



Note.—Standard scores (Mean = 50 and S.D. = 10) are based on men and women in the CPP 12-13 norm group.

Fig. 4.1. Differences in profile medians for men enrolled in selected program clusters.

TABLE 4.23

Differences on CPP 12-13 Single-Item Self-Report Scales for Students Grouped by Program Cluster: Men

Program cluster	N	Working Condition Preferences: Indoor/ Outdoor	Others/ Alone	Varied/ Routine	Phys./ Nonphys.	Self-Rated Abilities: Acad. Motiv.	Work Motiv.	Art. Abil.	Cler. Abil.	Engl. Abil.	Math. Abil.	Mech. Abil.	Sci. Abil.	Self-Confid.	Work w. People
VOCATIONAL-TECHNICAL PROGRAMS															
Trades	366				phys.	low			low			high	low		
Technical-Agricultural Production	176	outdoor	alone		phys.						low				
Technical-Engineering Applications	246	indoor				high		high			high	high	high		
Health	74	indoor	others							high		low	high	high	
Social Service	127	outdoor		varied											
Business Contact	136	outdoor												high	
Business Detail	214	indoor			nonphys.				high		high	low			
TRANSFER PROGRAMS															
Natural Science-Health	38		alone										high		
Arts & Humanities	43							high			low	low			
Social Science	48										low				
Business Admin.	87	indoor			nonphys.				high			low			

several of the CPP 12-13 measures are substantial and in the expected directions. Similar results were also observed for men and women in eight other CPP 12-13 program clusters including four involving transfer programs.

Program cluster differences on self-report scales. Chi-square analyses were used to determine the extent of the differences across program clusters in the responses of students on 14 of the CPP 12-13 self-report scales. Students involved in the analysis were chosen from the CPP 12-13 national norm group according to the following criteria: they had a post-high school first-term GPA of 2.0 (C) or higher and they had expressed satisfaction with their program choice at the end of the first term. In certain of the very large programs, sub-samples were randomly selected from among these "successful" and "satisfied" students in order to avoid large discrepancies in sample sizes across the clusters. The self-ratings of approximately 1,550 men and 1,200 women were involved in the chi-square analyses.

For each of the 14 self-report scales, a 4-by-11 (4 response categories, 11 program clusters) contingency table was formed for men and a 4-by-9 contingency table was formed for women. Chi-square analyses were performed on each of these tables. Items for which responses differed across clusters were identified by comparing the overall chi-square for each item with the 99th percentile point of the appropriate chi-square distribution. This screening point was used to avoid identifying items which differentiated clusters only as the result of random variation. The response trends for those items with overall chi-squares exceeding the screening point are summarized in Table 4.23 for men. The results for women, which were similar, are reported in the *Handbook for the ACT Career Planning Program* (ACT, 1972).

In general, the results of the contingency table analyses show that the CPP 12-13 self-report items are useful in differentiating among successful and satisfied students enrolled in the broad range of vocational, technical, and transfer programs. Item response trends for the clusters are in the expected direction. In addition, each cluster has a unique pattern of responses which differentiates it from the other clusters. For example, students enrolled in the Trades program cluster prefer physical, rather than nonphysical working conditions and rate themselves low in academic motivation, clerical ability, and science ability. They rate themselves high in mechanical ability, however. By contrast, male students enrolled in the Health program cluster prefer working indoors and working with others and rate themselves high in English ability, science ability, and self-confidence. They rate themselves low in mechanical ability. Similar comparisons can be made for other program clusters.

Discriminant analyses for educational program areas. Educational program differences were also studied through the use of discriminant analysis, a statistical technique for finding those combinations of variables in a set of variables which best differentiate among various groups. The 17 program areas for men and 14 program areas for women involved in the discriminant analyses are the same as those involved in predictions of course performance previously reported. "Successful and satisfied" students were drawn from these groups according to the same criteria used in the chi-square analyses described above. The CPP 12-13 variables used in the discriminant analysis are shown in Table 4.24.

The manner in which the educational program clusters for men and women are differentiated by CPP 12-13 measures is illustrated in Figures 4.2 and 4.3, respectively. The figures show the locations of educational

TABLE 4.24

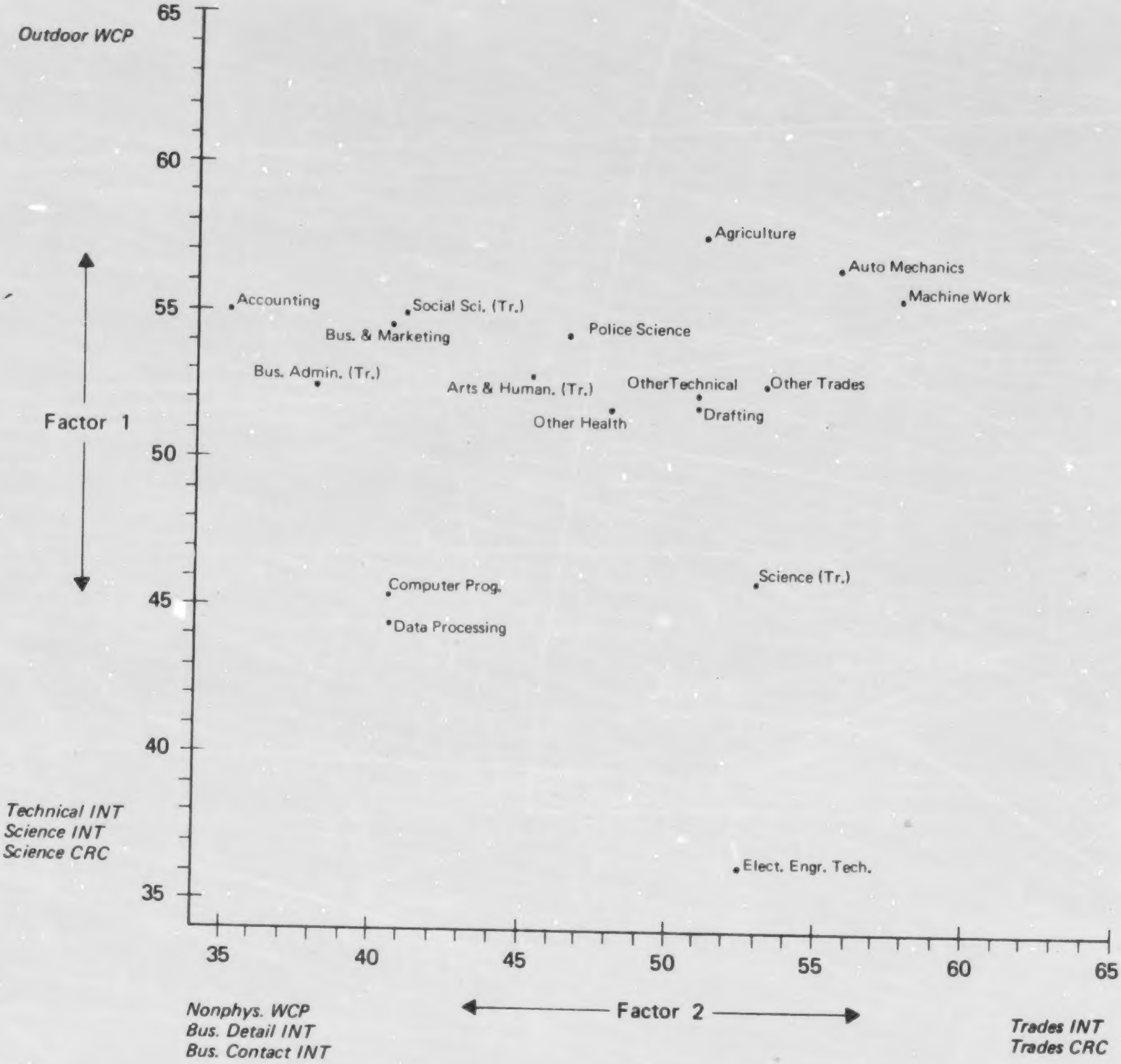
CPP 12-13 Measures Used in Discriminant Analyses

Measures	Men	Women
WORKING CONDITION PREFERENCES		
Indoor/Outdoor	X	X
Others/Alone	–	–
Varied/Routine	–	–
Phys./Nonphys.	X	X
VOCATIONAL INTEREST PROFILE MEASURES		
Science	X	X
Health	–	X
Arts	X	X
Social Service	–	X
Business Contact	X	X
Business Detail	X	X
Trades	X	–
Technical	X	–
CAREER-RELATED COMPETENCIES		
Trades	X	–
Technical	–	–
Science	X	X
Arts	–	–
Business Contact	X	X
Business Detail	X	X
Social Service	–	X
JOB VALUES COMPOSITES		
Economic Security Composite[a]	X	X
Autonomy Composite[b]	X	X

NOTE.—Measures used in a given set are indicated by X.

[a] The Economic Security Composite consists of the sum of the Job Values ratings for Pay and Security.

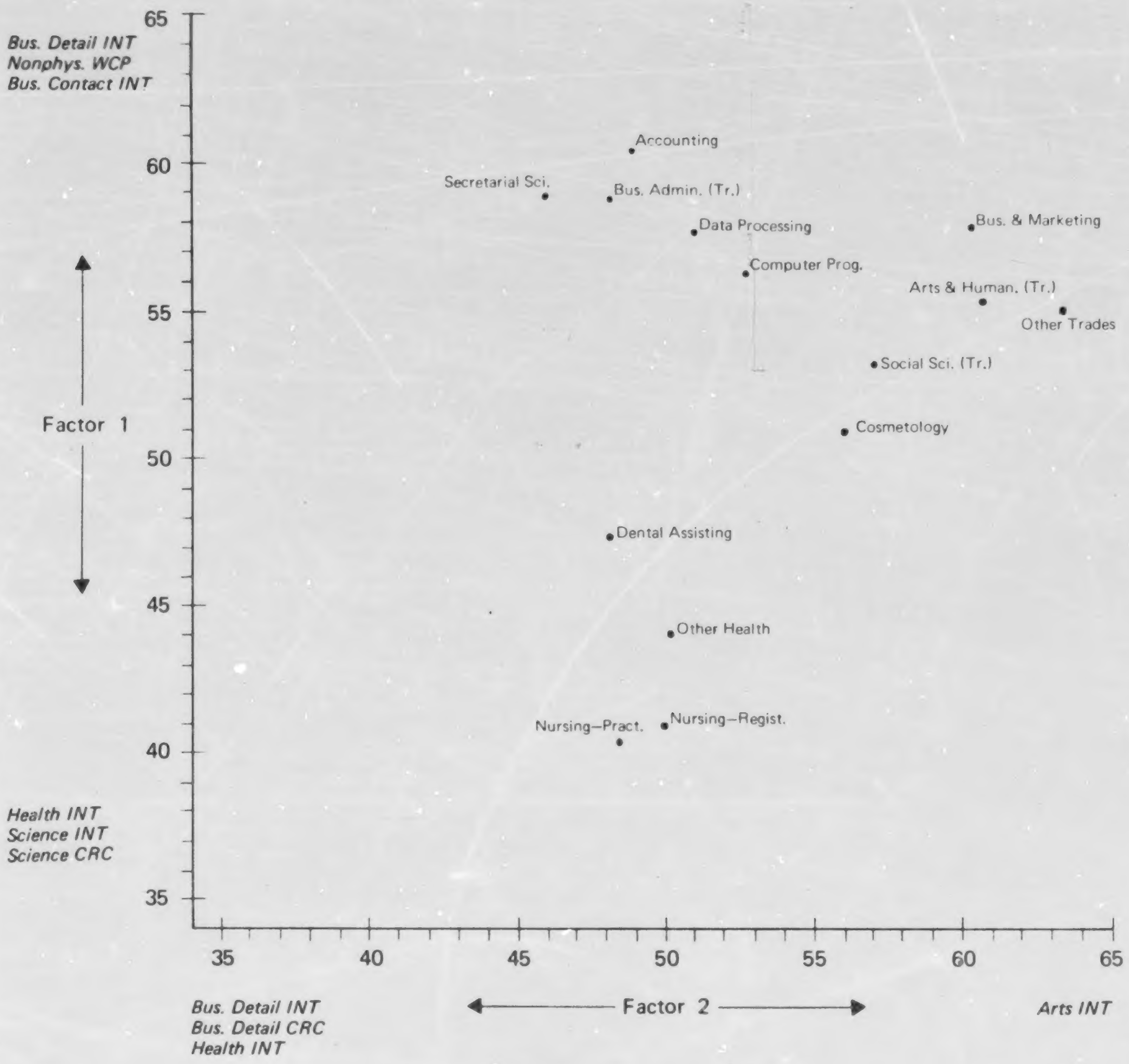
[b] The Autonomy Composite consists of the sum of the Job Values ratings for Independence and Responsibility.



NOTE.—Factor score scales (Mean = 50, S.D. = 10) are based on all students included in the analysis. All measures correlating with the discriminant factors at .40 or higher are shown as factor anchors in rank order according to level of correlation. Where no measure met this criterion, measures with the highest correlations are shown.

Abbreviations used with measures are as follows: INT = Interests, WCP = Working Condition Preferences, and CRC = Career-Related Competencies.

Fig. 4.2. Distribution of educational program areas on first two discriminant factors (men).



NOTE.–Factor score scales (Mean = 50, S.D. = 10) are based on all students included in the analysis. All measures correlating with the discriminant factors at .40 or higher are shown as factor anchors in rank order according to level of correlation. Where no measure met this criterion, measures with the highest correlations are shown.

Abbreviations used with measures are as follows: INT = Interests, WCP = Working Condition Preferences, and CRC = Career-Related Competencies.

Fig. 4.3. Distribution of educational program areas on first two discriminant factors (women).

program centroids on the first two discriminant factors. Thus, they provide a convenient way of summarizing educational program differentiation. Measures having the highest correlations with each factor are shown as factor anchors in the figures. These factor anchors help define the nature of the discriminant factors and also provide an indication of how the educational programs differ from one another.

Considerable educational program differentiation was achieved by CPP 12-13 measures for both men and women. Wilks' Lambdas were .24 and .23 for men and women, respectively, values which have a very high statistical significance. Educational program centroids falling near the extremes of each factor differ by as much as one and one-half to two standard deviations, a difference which is substantial and meaningful. Similar results were obtained in analyses based on the CPP 12-13 Ability Scales, self-rated abilities, and high school grades (ACT, 1972).

Using scores on the eight CPP 12-13 Vocational Interest Profile Scales, Hanson and Prediger (1973) conducted a discriminant analysis for a subset of the student sample (N=501 women and 629 men) used in the discriminant analyses described above. Educational programs which were archetypes for each of the six Interest Scales were chosen from the pool of programs, and within these programs, students were subsampled in order to make sample sizes across programs approximately equal. For example, the Registered Nursing Program was selected to characterize the Health Scale and every *n*th student from the program was eliminated to make the sample size similar to other groups.

Wilks' Lambdas of .16 for men and .27 for women indicate that considerable program differentiation was achieved when the Interest Scales were used alone. A check on the accuracy of interest scores in classifying individuals into their respective educational programs was also made. Hit rate tables were constructed by tabulating a "hit" if the actual group membership and the group indicated by a student's first, second, or third highest centour score (Rulon, Tiedeman, Tatsuoka, & Langmuir, 1967) was the same. Table 4.25 shows the cumulative percentage of hit rates for the three highest centour scores for males enrolled in eight educational programs. The hit rates for men ranged from moderate (63% for the Machine Work Program) to good (90% for the Social Science Transfer Program). Similar hit rates were obtained for women. Taken as a whole, the evidence indicates that CPP 12-13 measures differentiate educational program clusters as well as specific programs in significant and meaningful ways.

TABLE 4.25

Percentages of Males within Each Educational Program Who Received Their Highest, Second Highest, or Third Highest Centour Scores for the Program in Which They Were Enrolled

	Actual Group Membership								
Centour Rank	Science (Trans.)	Other Health	Arts & Humanities	Social Science (Trans.)	Business & Marketing	Accounting	Machine Work	Electrical Engr. Technology	**Summary for All Programs**
Highest	33.0	60.8	10.2	33.9	25.3	64.5	21.1	70.2	40.5
2nd Highest	38.0	9.5	30.6	23.2	34.9	9.2	10.5	13.1	21.5
3rd Highest	1.8	8.1	26.5	33.9	10.8	2.6	31.6	3.6	13.4
Cumulative percentages for three highest centours	72.8	78.4	67.3	91.0	71.0	76.3	63.2	86.9	75.4
Sample size	112	74	49	56	83	76	95	84	629

Note.—The probability is .375 (3/8) that a student's actual group membership would be correctly identified by chance alone, i.e., by selecting three programs at random.

Differentiation of College Majors: The ACT Interest Inventory

The ACT Interest Inventory (ACT-IV), added to the ACT Assessment in 1973, was designed to measure the same six interest areas as the CPP 8-11 Vocational Interest Profile. Item content differs somewhat, as is appropriate for the two groups for which the instruments were intended (i.e., grades 8-11 and grades 12-13). Data based on the work of Hanson (1974) are summarized in this section to illustrate the effectiveness of the ACT-IV scales in differentiating students enrolled in various college majors.

In the spring of 1973, ACT-IV results were collected from over 12,000 college seniors enrolled in 24 college majors. All students in the sample had expressed satisfaction with their major. Multiple discriminant analysis was used to examine the nature and extent of differences in ACT-IV scores across college majors. Figure 4.4 summarizes these differences.

The locations of the centroids for the 24 majors suggest that college majors differ substantially on the first two discriminant factors, an observation confirmed by the associated Wilks' Lambda of .30. On both factors the extreme groups scored approximately two standard deviations apart. Figure 4.4 also suggests that many of the liberal arts or social science majors have fairly similar interests, as expected.

The nature of the two discriminant factors is defined in part by the anchor variables printed on the map. The ordering of the majors on each factor makes intuitive sense. For example, Accounting, Business, and Business Education majors obtained the highest scores on the first factor while Physical/Biological Science majors obtained the lowest scores. In summary, these results suggest that the six ACT-IV scales effectively differentiate between students enrolled in various college majors and, thus, provide further support for the criterion-related validity of the CPP 8-11 Interest Scales.

Differentiation of Job Family Preferences: CPP 8-11

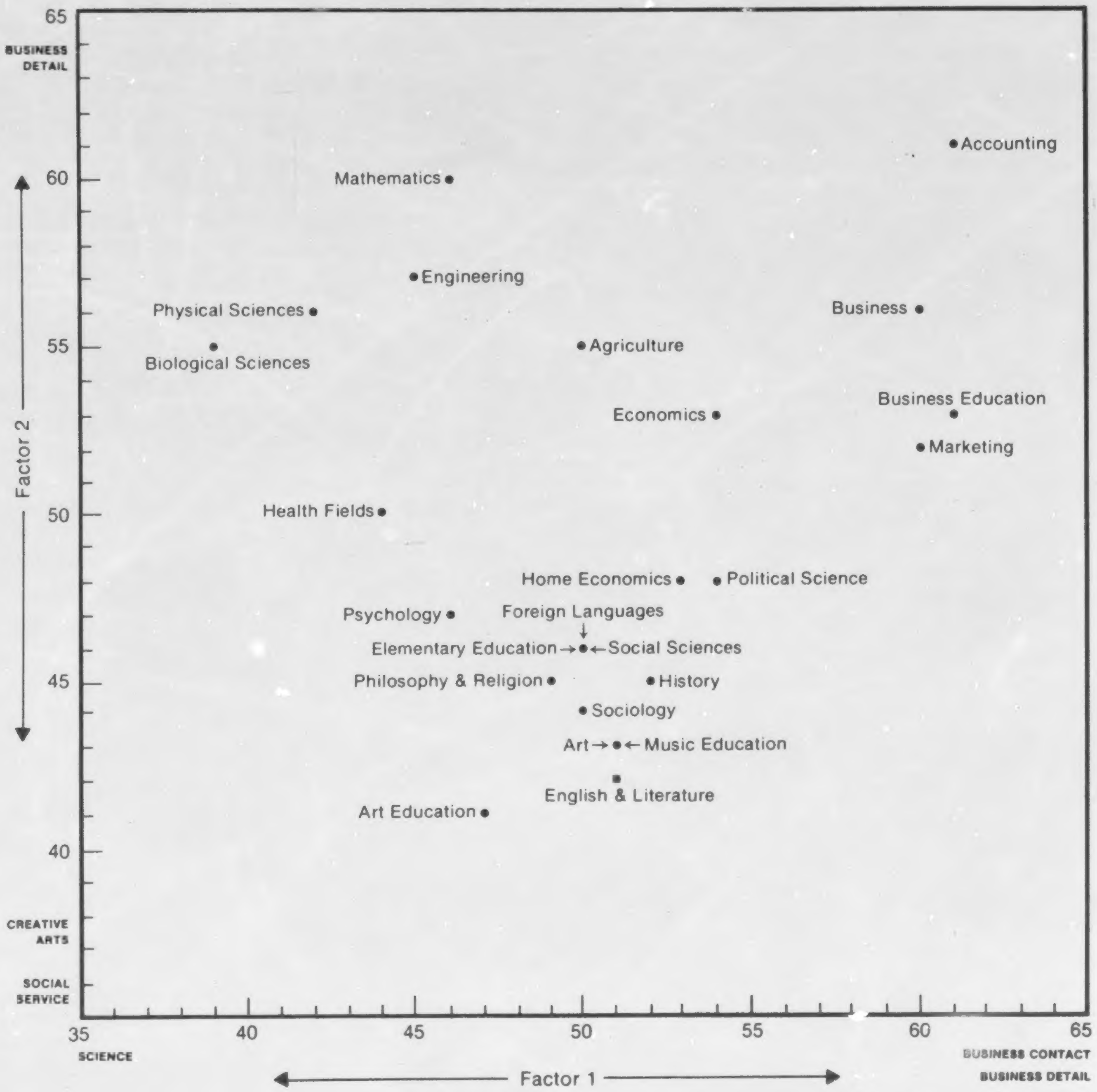
The third type of criterion-related validity evidence available for CPP 8-11 measures is their effectiveness in differentiating among students (specifically, 11th graders) classified into job families according to their occupational preferences. As previously described, students associate their occupational preferences with job families in the CPP 8-11 Career Plans Unit. Differences on the CPP 8-11 Interest and Experience Scales among 11th graders grouped according to the job family are summarized here. A full report of the study (Prediger & Roth, 1974) can be obtained from the Publications Division of ACT.

The job family preferences of 11th graders do not provide ultimate criteria for evaluating the criterion-related validity of interest and experience measures. However, research has shown that occupational choices are moderately stable during the later years of high school (e.g., see Whitney, 1969), which indicates that many students have established a general direction for their careers during this stage of development. Because changes from initial occupational choices to related ones are accommodated by the broad job family groups used in the study, these groups should be satisfactory for use as intermediate criteria of occupational choice. Certainly, if expected differences in the scores of students across the job families do *not* occur, serious questions about the criterion-related validity of CPP 8-11 measures could be raised.

Students in the study were selected from the 11th grade norm group. Of the 9,307 students in this group, 2,046 who indicated they were "not sure at all" of their first occupational preference were eliminated from the job family groups. Interest and experience score profiles were then developed for each job family. Figures 4.5 to 4.10 present the interest profiles for six "archetype" job families, one from each of the six CPP 8-11 Job Clusters. A z-score scale is used in the profiles, with sex differences and the effects of response level removed. (Response level effects can be defined briefly as the general tendency to respond "like," "dislike," etc., to items regardless of item content.)

In each case, the interest profiles show that students in the six job families score as expected. For example, students in the Management and Planning Job Family (Figure 4.5) score highest on the Business Contact and Business Detail Scales, both of which cover types of activities typical of management and planning occupations. On the other hand, students preferring occupations in the Paying, Receiving, and Bookkeeping Job Family score highest on the Business Detail Scale. Their somewhat lower, but still relatively high, score in the Business Contact Scale is also congruent with expectations. Standard deviations for the job families typically ranged from .5 to .7 for each measure. Profile differences are substantial when viewed in this context.

Similar though much less pronounced differences in profiles were obtained for the Experience Scales. The Management and Planning Job Family had the least definitive profile, with Business Detail replacing Business Contact as the highest scale. The greatest profile differentiation was obtained for the Science and Creative Arts Job Families. In summary, the interest and experience profiles for all job families reflect expected differences from measure to measure and from job family to job family.



Note.—Factor score scales (Mean = 50, S.D. = 10) are based on all students included in the analysis. All measures correlating with the discriminant factors at .40 or higher are shown as factor anchors in rank order according to level of correlation.

Fig. 4.4. Distribution of college level educational programs on the first two discriminant factors for six ACT Interest Inventory scales.

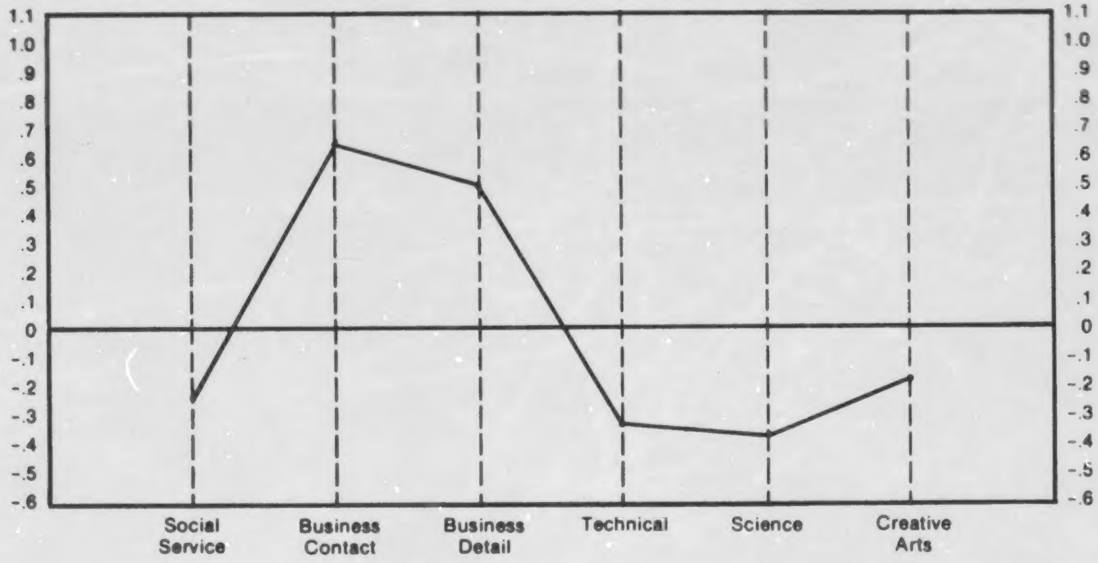


Fig. 4.5. Interest profile for the Management and Planning Job Family (N = 206).

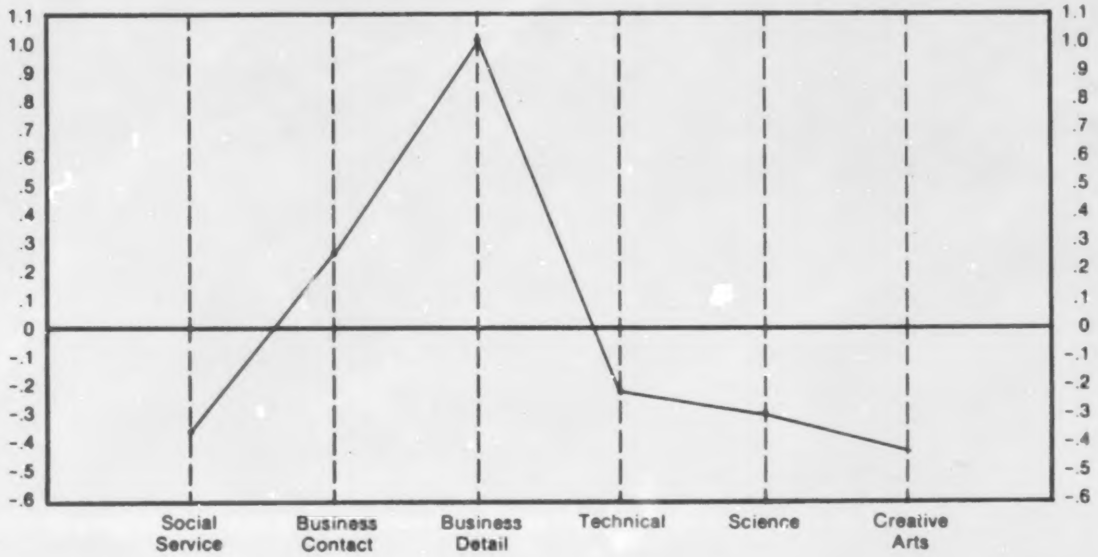


Fig. 4.6. Interest profile for the Paying, Receiving, and Bookkeeping Job Family (N = 221).

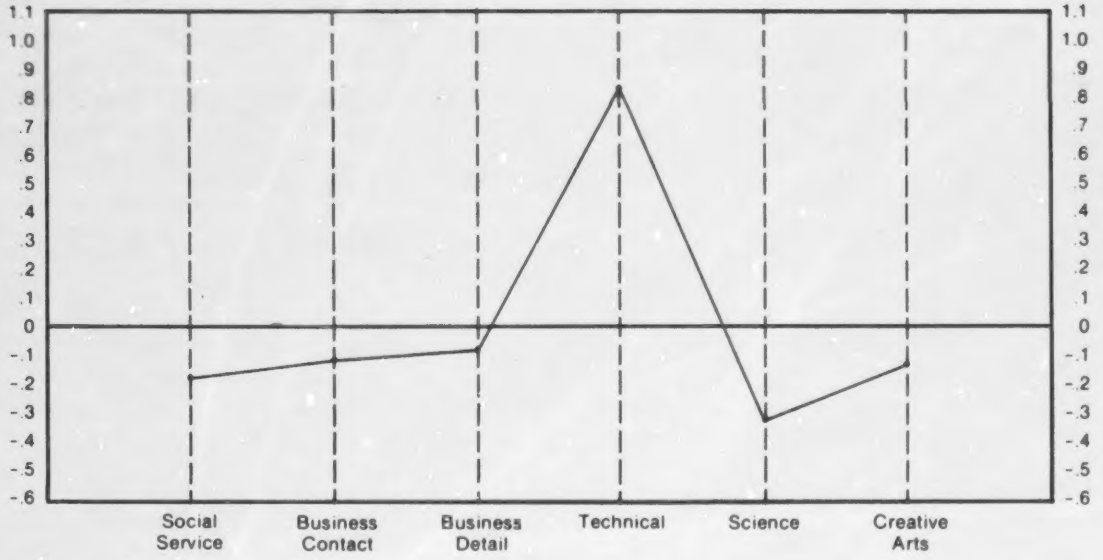


Fig. 4.7. Interest profile for the Machine Operating, Servicing, and Repairing Job Family (N = 381).

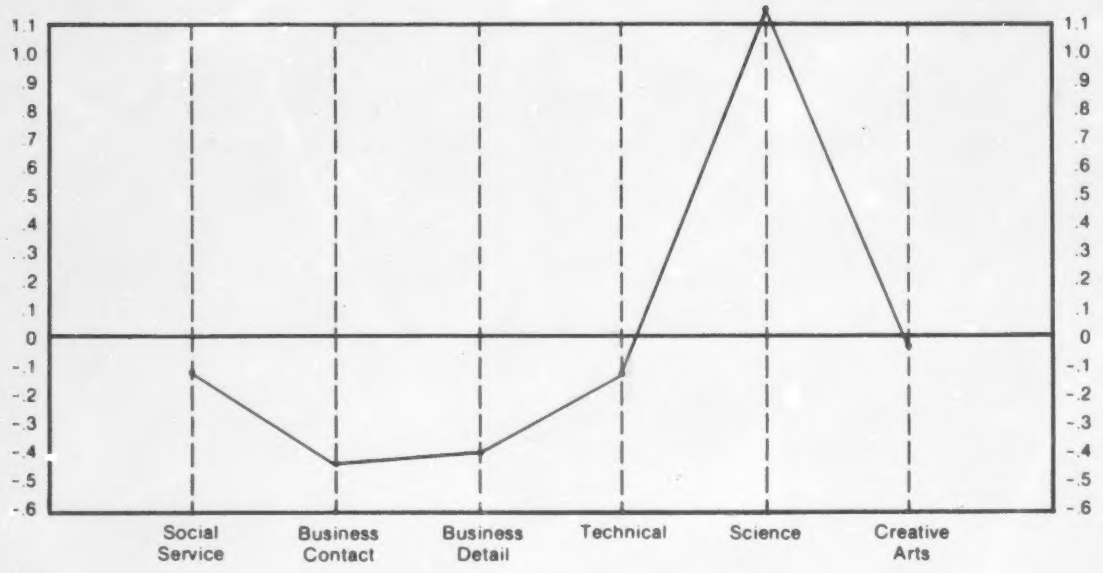


Fig. 4.8. Interest profile for the Natural Sciences and Mathematics Job Family (N = 294).

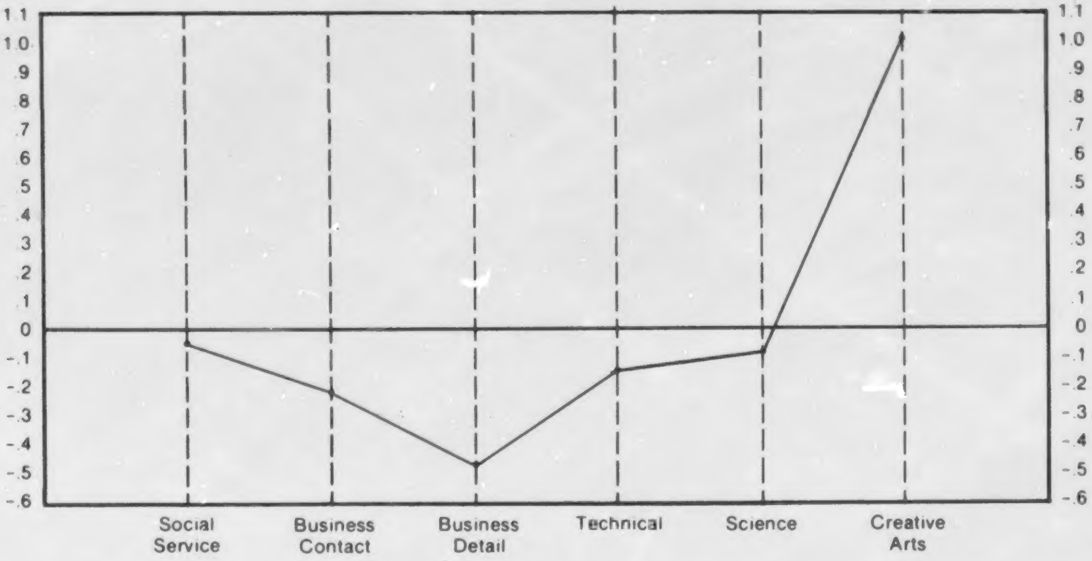


Fig. 4.9. Interest profile for the Creative Arts Job Family (N = 269).

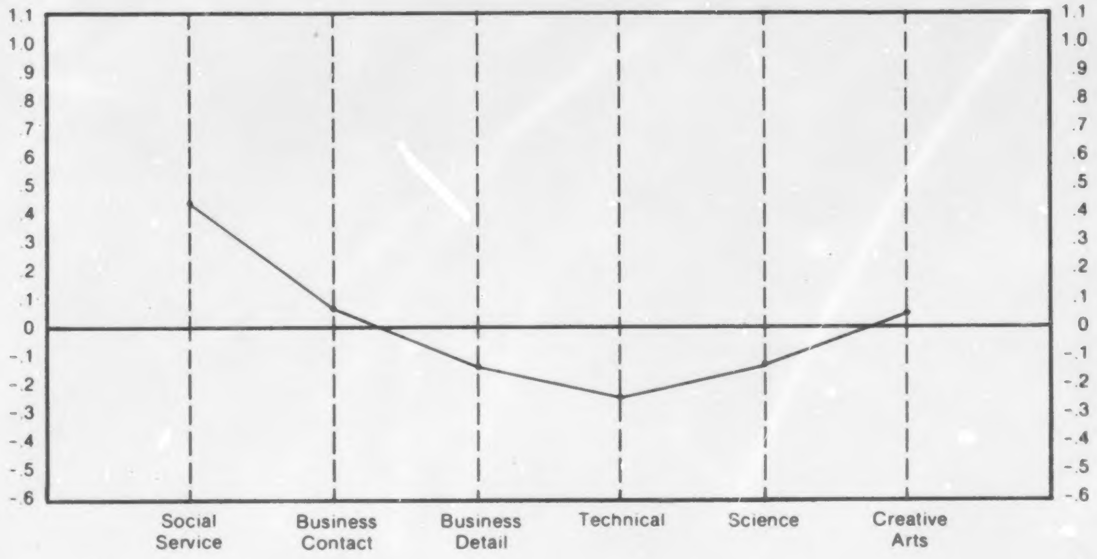


Fig. 4.10. Interest profile for the Education and Social Services Job Family (N = 939).

Further evidence of the effectiveness of CPP 8-11 measures in differentiating among job families is provided by the distribution of job families on the first two principal components for the Interest Scales. A principal components analysis was conducted on the scores of all students in the 10% norm group sample for the 11th grade (see description in section on reliability) with the sex differences and the effects of response level controlled. The first two components accounted for 53% of total variance, and yielded eigenvalues of 1.79 and 1.41, respectively. Varimax loadings for these two components are shown in Table 4.26. They differ only slightly from the unrotated loadings. Considered in light of CPP 8-11 Interest Scale content and in conjunction with other studies of interest dimensions (Prediger & Roth, 1974), the first component can be interpreted as representing a data/ideas interest dimension with the second component representing a people/things dimension. Whatever labels are used, however, the distributions of job families on these two principal components provide evidence relevant to the criterion-related validity of the interest scales.

Mean scores for each of 25 job families described above were obtained for the two principal components. These job families are ranked according to their scores on each component in Table 4.27. With few exceptions, the distribution of the job families is congruent with the interest scale loading for the two components and with the suggested titles for the interest dimensions which the components represent. This evidence, together with evidence provided by the job family profiles, supports the criterion-related validity of CPP 8-11 measures.

TABLE 4.26

Varimax Loadings of First Two Principal Components for Interest Scales (N=930)

	Correlations with principal component	
Interest Scale	1	2
Social Service	-.19	.77
Business Contact	.72	.24
Business Detail	.77	-.12
Technical	-.15	-.86
Science	-.65	.03
Creative Arts	-.43	.06

TABLE 4.27

Rank Order of Job Families on First Two Principal Components for Interest Scales

Component 1		**Component 2**	
Job Family	*Number of Students*	*Job Family*	*Number of Students*
("Data" pole)		*("People" pole)*	
Paying, Receiving, and Bookkeeping	221	Social Sciences and Legal Services	150
Clerical and Secretarial Work	625	Education and Social Services	939
Management and Planning	206	Nursing and Human Care	612
Storage, Dispatching, and Delivery	36	Office Machine Operation[a]	271
Retail Sales and Services	85	Medicine and Medical Technologies	723
Office Machine Operation	271	Popular Entertainment	33
Promotion and Direct Contact Sales	128	Applied Arts, Verbal	109
Human Services Crafts	102	Management and Planning	206
(Middle 10 omitted)		*(Middle 10 omitted)*	
Growing and Caring for Plants/Animals	269	Applied Arts, Visual	366
Nursing and Human Care	612	Engineering and Other Applied Technologies	469
Applied Arts, Visual	366	Growing and Caring for Plants/Animals	269
Social Sciences and Legal Services	150	Repairing and Servicing Home and Office Equipment	128
Creative Arts	269	Transport Equipment Operation	58
Medicine and Medical Technologies	723	Construction and Maintenance	329
Natural Sciences and Mathematics	294	Machine Operating, Servicing, and Repairing	381
("Ideas" pole)		*("Things" pole)*	

[a] Data indicate that students in this job family (especially males) may prefer white collar, office-related activities and reject blue collar, things-related activities. Nevertheless, the position of this job family is puzzling.

The various types of validity data previously cited should contribute to the reader's evaluation of the construct validity of CPP 8-11 assessment components. Additional information bearing on construct validity is provided in this section. Special attention is given to the ACT Occupational Classification System and the underlying work task and interest dimensions on which many of the CPP 8-11 interpretive suggestions are based.

Development of the ACT Occupational Classification System

The CPP 8-11 Job Clusters and Job Families, which play such a prominent role in *Exploring* and on the Student Report, are the primary organizational elements in the ACT Occupational Classification System. As described below, the system is structured around the data/ideas and people/things dimensions of work. Because of the substantial evidence that these two bipolar dimensions also characterize vocational interests, they provide a crucial link between self and career information in the Career Planning Program. This link is used by the CPP 8-11 Exploration Priority System, described later in this section of the handbook, to suggest to students job families for exploration.

Reason for Development of a Classification System. Identification by the U.S. Department of Labor (1965) of more than 35,000 occupational titles provides dramatic testimony to the complexity of the world of work. Those who seek to help students with career exploration and planning have long recognized that some means of organizing and summarizing this complexity is needed. As a result, a number of occupational classification systems have been developed. Examples range from the 15 industry-based clusters developed by the U.S. Office of Education (1971) to the 72-group, psychologically-based typology constructed by Holland (1972). Undoubtedly, the most widely used and influential occupational classification systems are those appearing in the *Dictionary of Occupational Titles* (U.S. Department of Labor, 1965).

A review of the above systems and more than 15 others identified in a cursory search of the professional literature indicated that, from the standpoint of career guidance, each had certain strengths and weaknesses. None had all of the characteristics ACT believed to be important in helping students with career exploration. (See the section on objectives that follows.) Indeed, it appeared that the perfect classification system did not, and would not ever, exist. Because of the complexity of the world of work, no system could be all things to all people. In each system, certain compromises had to be made to achieve the desired emphases.

Thus, early in 1972, staff members in the Developmental Research Department of ACT undertook the challenging task of constructing an occupational classification system for use in ACT's Career Planning Programs. A report describing these efforts is in preparation. Copies of the report (Prediger & Roth, 1974) can be obtained from the Publications Division of ACT. A brief overview of the system and its development follows.

Overview of Classification System. Figure 4.11 shows the hierarchical structure of the ACT Occupational Classification System. At the most general level, there are six "job clusters" similar in nature to the six occupational environments described by Holland (1973). At the second level of the hierarchy, each job cluster subsumes from 3 to 7 "job families," with a total of 25 job families across the six clusters. (The word "job" is used in both titles because the classification system is intended for use with students. "Occupation" would be the more appropriate term for a professional audience.) The job families, in turn, are subdivided into three categories of formal job preparation. As an alternative, the system also provides for the division of job families into the 603 3-digit occupational code groups used in the *Dictionary of Occupational Titles* (DOT). Finally, occupational titles are listed according to typical types of formal preparation. In instances where complete specificity is not warranted, these titles may subsume a range of individual occupations (e.g., factory machine operators, editors, retail sales workers, school teachers).

The six job clusters and related job families appear in Figure 4.12 in the form they are presented to students. The third level of classification, type of preparation, is shown in the Job Family Charts in Part 7 of *Exploring: You and Your Career,* the CPP 8-11 student's guide. More than 650 occupations are listed in these charts according to job cluster, family, and type of preparation. Hence, the charts provide a comprehensive overview of the entire classification system. The relationship of the ACT system to other occupational classification systems is shown in Appendix C.

Objectives on Which the System is Based. As noted above, there can be no perfect occupational classification system. Any system will reflect a series of compromises necessitated by the complexity of the world of work. The compromises made in developing the ACT Occupational Classification System were based on the following objectives.

1. The system must encompass the entire world of work.
2. The system must be appropriate for persons in various stages of career development.

3. The system must provide an overview of the world of work in occupational terms. That is, occupations should be grouped on the basis of similarities in job duties rather than by industry or by the psychological characteristics of workers.

4. The system must make it possible for students to identify occupations for exploration on the basis of their educational plans and personal characteristics, specifically, their interests and abilities.

In order to accomplish the first objective, the 13,800 occupations identified as unique in the DOT were used as the primary units of analysis in developing the system. However, for documentation purposes, it was desirable to be able to define the occupational content of the job families by 3-digit DOT code groups rather than by lists of thousands of specific occupational titles. Hence, whenever possible, the integrity of the 603 occupational code groups appearing in the DOT was maintained. Several compromises were made in this direction, and as a result, the DOT code groups, when arranged by job family, provide a comprehensive summary of the occupational content of the classification system. In addition, the DOT code groups can be used to provide another level of specificity to the hierarchical structure of occupations.

The major compromise made in order to accomplish the second objective for the classification system was to minimize the number of classification categories and to provide three classification levels of increasing specificity. From the standpoint of simplicity of use, especially for persons in an early stage of career development, an occupational classification system should have as few categories as possible. However, too few categories may cloud important differences and relationships among occupations. The categories may be so heterogeneous that their value in career exploration and planning will be minimal.

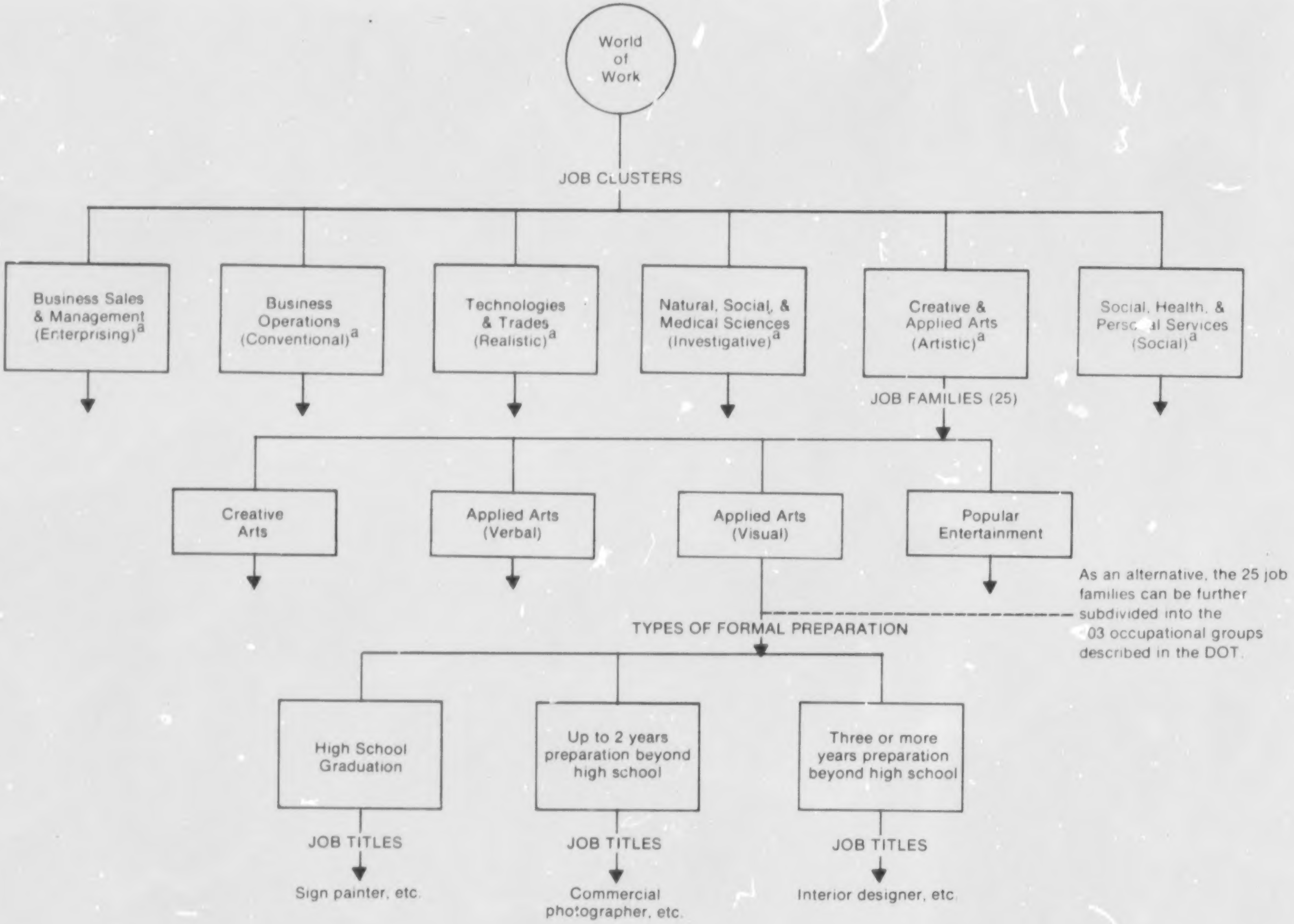
In response to this dilemma, the hierarchical system illustrated in Figure 4.11 was developed. At the most general level of the hierarchy, students are introduced to the six job clusters, each of which covers a relatively unique region of the work world. At the second level, 25 job families are used to summarize the complexity of the work world. Because the job families are organized according to job cluster, their number is not unmanageable. Finally, at the third level of the hierarchy, students are referred to specific occupations classified according to job cluster, job family, and type of formal preparation. At this level of complexity there are 75 groups in the system. However, only 25 job families are involved, and because each has been subdivided into the same job preparation categories, specificity is obtained without sacrificing simplicity.

The third and fourth objectives for the ACT Occupational Classification System appear, at first glance, to be incompatible. That is, the classification system must provide an overview of the work world in occupational terms and, at the same time, it must have a psychological basis in order to help students relate their personal characteristics to occupations. Accomplishing both of these objectives with the same system was, indeed, quite difficult. Expressed in terms of the two DOT occupational classification systems, the third objective meant that the job families should be structured along the lines of the occupational group arrangement rather than the worker traits arrangement. The former classifies occupations according to work field, purpose, product, service, etc., while the latter groups occupations according to some combination of aptitudes, interests, temperaments, etc.

Although the DOT worker traits arrangement has a number of desirable features, the number of groups (114) is unwieldy from a guidance standpoint, and the occupations in a specific group are often quite diverse. For example, the worker trait group titled "Interviewing, Information-giving, and Related Work" lists the following occupations: Movie casting director, board-of-education secretary, examination proctor, and insurance policy information clerk. In order to provide students with a comprehensive yet simple overview of occupations, job families that were as homogeneous as possible with respect to work field, etc., were preferred. Yet, it was also crucial that the system contribute to helping students relate their personal characteristics to the job families. As described below, the compromise that evolved over 2 years of research and study uses characteristics of both of the DOT classification systems in forming job families.

Data/Ideas and People/Things Dimensions of Work. Information on the worker traits associated with each of the 13,800 occupations identified as unique in the DOT was obtained on computer tape from the U.S. Department of Labor. Analyses of this information and Holland codes for the 603 3-digit DOT groups (Holland, 1973) indicates that there are two basic and relatively independent bipolar dimensions of work tasks on which occupations and 3-digit DOT code groups differ—a data/ideas dimension and a people/things dimension. Occupations having high involvement with data (e.g., accounting, air traffic control, office management) tend to have low involvement with ideas. Conversely, occupations having high involvement with ideas (e.g., creative writing, social psychology, and zoology) tend to have low involvement with data. Similarly, occupations with high "people" involvement (e.g., school counseling, nursing, sales management) tend to have low "things" involvement, and vice versa.

These same work task dimensions are also implicit in the circular configuration of occupations suggested by Roe (1956) and Roe & Klos (1969) and are compatible with the results of research on Holland's six types of personal orientations and occupational environments (e.g., see Cole, 1973; Cole & Hanson, 1971; Cole, Whitney, & Holland, 1971; Edwards & Whitney, 1972; and Holland, 1973). Indeed, a factor analysis by Cottle completed


World of Work
JOB CLUSTERS
Business Sales & Management (Enterprising)[a]
Business Operations (Conventional)[a]
Technologies & Trades (Realistic)[a]
Natural, Social, & Medical Sciences (Investigative)[a]
Creative & Applied Arts (Artistic)[a]
Social, Health, & Perso al Services (Social)[a]
JOB FAMILIES (25)
Creative Arts
Applied Arts (Verbal)
Applied Arts (Visual)
Popular Entertainment
As an alternative, the 25 job families can be further subdivided into the 03 occupational groups described in the DOT.
TYPES OF FORMAL PREPARATION
High School Graduation
Up to 2 years preparation beyond high school
Three or more years preparation beyond high school
JOB TITLES
JOB TITLES
JOB TITLES
Sign painter, etc.
Commercial photographer, etc.
Interior designer, etc.

[a]Related title in Holland's typology for occupational environments.

Fig. 4.11. Overview of the ACT Occupational Classification System.

BUSINESS SALES & MANAGEMENT JOB CLUSTER

A. PROMOTION AND DIRECT CONTACT SALES
Public relations workers, fashion models, travel agents, sales workers who visit customers (for example—real estate brokers, insurance agents, wholesalers, office supplies sales workers)

B. MANAGEMENT AND PLANNING
Hotel, store, and company managers, bankers, executive secretaries, buyers, purchasing agents, small business owners

C. RETAIL SALES AND SERVICES
Sales workers in stores and shops, auto salespersons, retail sales workers

BUSINESS OPERATIONS JOB CLUSTER

D. CLERICAL AND SECRETARIAL WORK
Typists, file clerks, mail clerks, office messengers, receptionists, secretaries

E. PAYING, RECEIVING, AND BOOKKEEPING
Bank tellers, accountants, payroll clerks, grocery check-out clerks, ticket sellers, cashiers, hotel clerks

F. OFFICE MACHINE OPERATION
Adding, billing, and bookkeeping machine operators, computer and data processing machine operators, telephone operators

G. STORAGE, DISPATCHING, AND DELIVERY
Shipping and receiving clerks, stock clerks, truck and airplane dispatchers, delivery truck drivers, cab drivers, mail carriers

TECHNOLOGIES & TRADES JOB CLUSTER

H. HUMAN SERVICES CRAFTS
Barbers, hairdressers, tailors, shoemakers, cooks, chefs, butchers, bakers

I. REPAIRING AND SERVICING HOME AND OFFICE EQUIPMENT
Repairing and servicing TV sets, appliances, typewriters, telephones, heating systems, photo copiers

J. GROWING AND CARING FOR PLANTS/ANIMALS
Farmers, foresters, ranchers, gardeners, yard workers, groundskeepers, plant nursery workers, animal caretakers, pet shop attendants

K. CONSTRUCTION AND MAINTENANCE
Carpenters, electricians, painters, custodians (janitors), bricklayers, sheet metal workers, construction laborers (buildings, roads, pipelines, etc.)

L. TRANSPORT EQUIPMENT OPERATION
Long haul truck and bus drivers, bulldozer operators, crane operators, forklift operators

M. MACHINE OPERATING, SERVICING, AND REPAIRING
Auto mechanics, machinists, printing press operators, sewing machine operators, service station attendants, laborers and machine operators in factories, mines, lumber camps, etc.

N. ENGINEERING AND OTHER APPLIED TECHNOLOGIES
(For science and medical technicians, see Job Families O and P.)
Engineers and engineering technicians, draftsmen and draftswomen, pilots, surveyors, computer programmers

NATURAL, SOCIAL, & MEDICAL SCIENCES JOB CLUSTER

O. NATURAL SCIENCES AND MATHEMATICS
Biologists, chemists, lab technicians, physicists, geologists, statisticians, agricultural scientists, ecologists

P. MEDICINE AND MEDICAL TECHNOLOGIES
Dentists, doctors, veterinarians, medical technologists and lab workers, pharmacists, X-ray technicians, optometrists, dental hygienists, dietitians

Q. SOCIAL SCIENCES AND LEGAL SERVICES
Sociologists, lawyers, political scientists, psychologists, home economists

CREATIVE & APPLIED ARTS JOB CLUSTER

R. CREATIVE ARTS
Authors, concert singers, musicians, actresses and actors, dancers, artists

S. APPLIED ARTS (VERBAL)
Reporters, technical writers, interpreters, newscasters, newswriters, ad copy writers

T. APPLIED ARTS (VISUAL)
Interior decorators, architects, commercial artists, photographers, fashion designers

U. POPULAR ENTERTAINMENT
Night club entertainers, popular singers and musicians, disc jockeys, circus performers

SOCIAL, HEALTH, & PERSONAL SERVICES JOB CLUSTER

V. EDUCATION AND SOCIAL SERVICES
Teachers*, counselors, social workers, librarians, athletic coaches, recreation workers, clergymen and clergywomen

W. NURSING AND HUMAN CARE
Child care aides, nurses, dental assistants, physical therapists, hospital attendants

X. PERSONAL AND HOUSEHOLD SERVICES
Waiters and waitresses, airline stewardesses and stewards, housekeepers, porters, car hops, butlers and maids

Y. LAW ENFORCEMENT AND PROTECTIVE SERVICES
Police officers, building, food, and postal inspectors, watchmen, plant guards, firefighters

*NOTE **Teachers:** Students thinking about high school or college teaching should consider whether their main goal is *teaching students* (mark Job Family V) or *doing work or research in the subject area*: for example—chemistry, (mark Job Family O), art (mark R or T), economics (mark Q), etc.

Fig. 4.12. Job Clusters and Related Job Families

more than 20 years ago (Cottle, 1950) pointed to similar bipolar dimensions.

Recent research at ACT based on the scores of several hundred occupational groups on the Basic Scales of the Strong Vocational Interest Blank, Project TALENT interest measures, and Holland's Vocational Preference Inventory also support the bipolar dimensions. Typically, more than 60% of the variation of occupations on these measures is accounted for by the two dimensions, and occupations distribute themselves on the dimensions in quite sensible ways. Finally, principal components analyses of norm group student scores on the six CPP 8-11 Interest Scales indicate that, when the effects of response level are removed, the scales can be used to place students on the same two dimensions.

In summary, the accumulated evidence, especially when viewed in the context of the theoretical formulations of Roe and Holland, provides strong support for two basic, bipolar dimensions of work tasks and work orientations. For this reason, the data/ideas and people/things dimensions were used to summarize worker trait information for occupations. Since these dimensions are also compatible with Holland's six types of personal orientations and occupational environments, Holland's types were used as the framework for organizing the job families into job clusters.

The poles of the two bipolar dimensions are described below with alternate terms appearing in parentheses. Examples of work activities are also provided.

Data (facts, records, files, numbers; systematic procedures for facilitating goods/services consumption by people). "Data activities" involve *impersonal processes* such as recording, verifying, transmitting, and organizing facts or data representing goods and services. Purchasing agents, accountants, and secretaries work *mainly* with data.

Ideas (abstractions, theories, knowledge, insights, and new ways of expressing something—for example, with words, equations, or music). "Ideas activities" involve *intrapersonal processes* such as creating, discovering, interpreting, and synthesizing abstractions or implementing applications of abstractions. Scientists, musicians, and philosophers work *mainly* with ideas.

People (no alternative terms). "People activities" involve *interpersonal processes* such as helping, informing, serving, persuading, entertaining, motivating, and directing—in general, producing a change in human behavior. Teachers, salesmen, and nurses work *mainly* with people.

Things (machines, mechanisms, materials, tools, physical and biological processes). "Things activities" involve *nonpersonal processes* such as producing, transporting, servicing, and repairing. Bricklayers, farmers, and engineers work *mainly* with things.

The occupations listed as examples were chosen with an emphasis on the primary purpose or focus of the job activities. For example, a scientist may work with data, but the primary purpose is *not* to produce or handle data; rather it is to create or apply scientific knowledge. Likewise, an accountant may work with ideas, but the ultimate goal is *not* to create ideas; rather, it is to organize, record, and verify data in a systematic manner.[5]

Summary of Classification System Development. Through a process of successive approximation, DOT occupations were arranged into job families that are relatively homogeneous with respect to involvement with data/ideas and people/things. At the same time, care was taken to maintain homogeneity with respect to work field and insure that the job families made sense in terms of the types of occupations that were grouped together. Initially, 30 job families were formed, each assigned to one of the six clusters. These job families were revised to make them more usable by students and were then tried out on approximately 1,600 9th graders attending seven schools located in four states. In the tryouts, students were asked to record their first and second occupational preferences and then allocate them to the 28 job families. Thus, a check could be made on the difficulties students had in comprehending the classification system.

Information from these tryouts and new analyses of DOT worker trait data led to further revisions of the occupational classification system. A version containing 25 job families was used in spring 1973 norming of the CPP 8-11. Students in the norm group study were introduced to the job families via an exercise appearing in a student orientation leaflet. This exercise essentially duplicated the CPP 8-11 occupational preference items and was meant to maximize accuracy in assignment of occupational preferences to job families by giving students prior experience with the task. As already reported, accuracy of assignment was subsequently studied for a random sample of 400 8th and 11th graders in 40 schools. Approximately 85% of both grade groups classified their occupational preferences into the appropriate job family. Where agreement was lacking, students usually had identified a job family closely associated with the appropriate one.

Information from the norm group study along with the theoretical considerations and research results cited above led to further revisions of the classification system. Included was the addition of the three job preparation categories. Allocation of occupations to the three categories was based on DOT ratings on the amount of time involved in preparing for occupations, supplemented by information in the *Occupational Outlook Handbook* (U.S. Department of Labor, 1972-73).

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[5] Some comments on the data, people, and things hierarchies in the DOT appear to be warranted in conjunction with the discussion in this section. Each occupation in the DOT is assigned a rating that summarizes its level of involvement with data, people, and things. (These ratings were taken into account in the analyses of occupations cited above.) Because level of involvement with data and ideas is expressed on the *same* scale, there are dramatic differences among occupations with high ratings on the DOT data hierarchy (e.g., accountants and poets). In addition, the DOT treats the data, people, things hierarchies as if they were unrelated. However, research at ACT indicates that there is a substantial negative relationship between DOT ratings on the people and things hierarchies.

The revisions noted above are reflected in the classification system currently in use. Occupational preferences of norm group students were reallocated to the revised job families so that national distributions could be run. These distributions are presented in Appendix F.

World of Work "Map". The distribution of the job families on the data/ideas and people/things dimensions is shown by the "World of Work Map for Job Families" presented to students in Part 5 of *Exploring* and reproduced here in Figure 4.13.

Job families are located on the "map" according to the relative standing of their member occupations on the two dimensions, as indicated by the studies cited above. Although care was taken to make job families as homogeneous as possible on these dimensions, there is still considerable scatter among the occupations in a job family. As noted on the "map," arrows are used to indicate the nature of this scatter when it is unusually large.

The reader is reminded that the "World of Work Map for Job Families" summarizes information on some 13,800 occupations. It was constructed to help students identify and explore career options. Hence, the map is application-oriented and is not meant to constitute a precise scientific statement. While ACT believes that the map in its current form is useful for purposes of career exploration, certainly no claim to infallibility is made. ACT hopes and intends that the map, and the classification system on which it is based, will be the subject of continued study, revision, and improvement.

Intercorrelations of CPP 8-11 Measures

The relationships among CPP 8-11 Interest, Experience, and Ability Scales are summarized below. Since these relationships help define what each scale is measuring, they contribute to an understanding of CPP 8-11 construct validity.

CPP 8-11 intercorrelations were obtained for the 10% norm group samples described in the section on reliability. Results for the Interest and Experience Scales are presented in Tables 4.28 and 4.29. While there are exceptions, the scales generally correlate as expected. In only 3 of 120 instances are the correlations between divergent Experience Scales and VIP Interest Scales higher than the correlations between similar scales. In addition, the correlations between the VIP Interest Scales generally make good sense, as do the correlations between the Experience Scales. For example, the principal components analysis described in the section on criterion-related validity shows that the interest scores of 11th graders can be summarized by two bipolar dimensions, a data/ideas dimension and a people/things dimension. Table 4.26 in that section shows that the VIP Interest Scales correlate in a sensible way with these dimensions (e.g., the Social Service Scale has a high positive loading on the people/things dimension while the Technical Scale has a high negative loading). Similar results were obtained in analyses of grade 8 and grade 9 data.

A particularly interesting feature of the data in Tables 4.28 and 4.29 is the decided drop from grades 8 to 11 in level of relationship between the VIP Interest Scales. The intercorrelations for grade 8 are higher than for grade 11 in all 15 instances. Furthermore, correlations for grade 9 (not presented here) in all instances fall between grade 8 and 11 correlations. Similar results were obtained for the Experience Scales, although there were a few reversals. These results provide strong support for the hypothesis that interests and experiences become more differentiated as students mature.

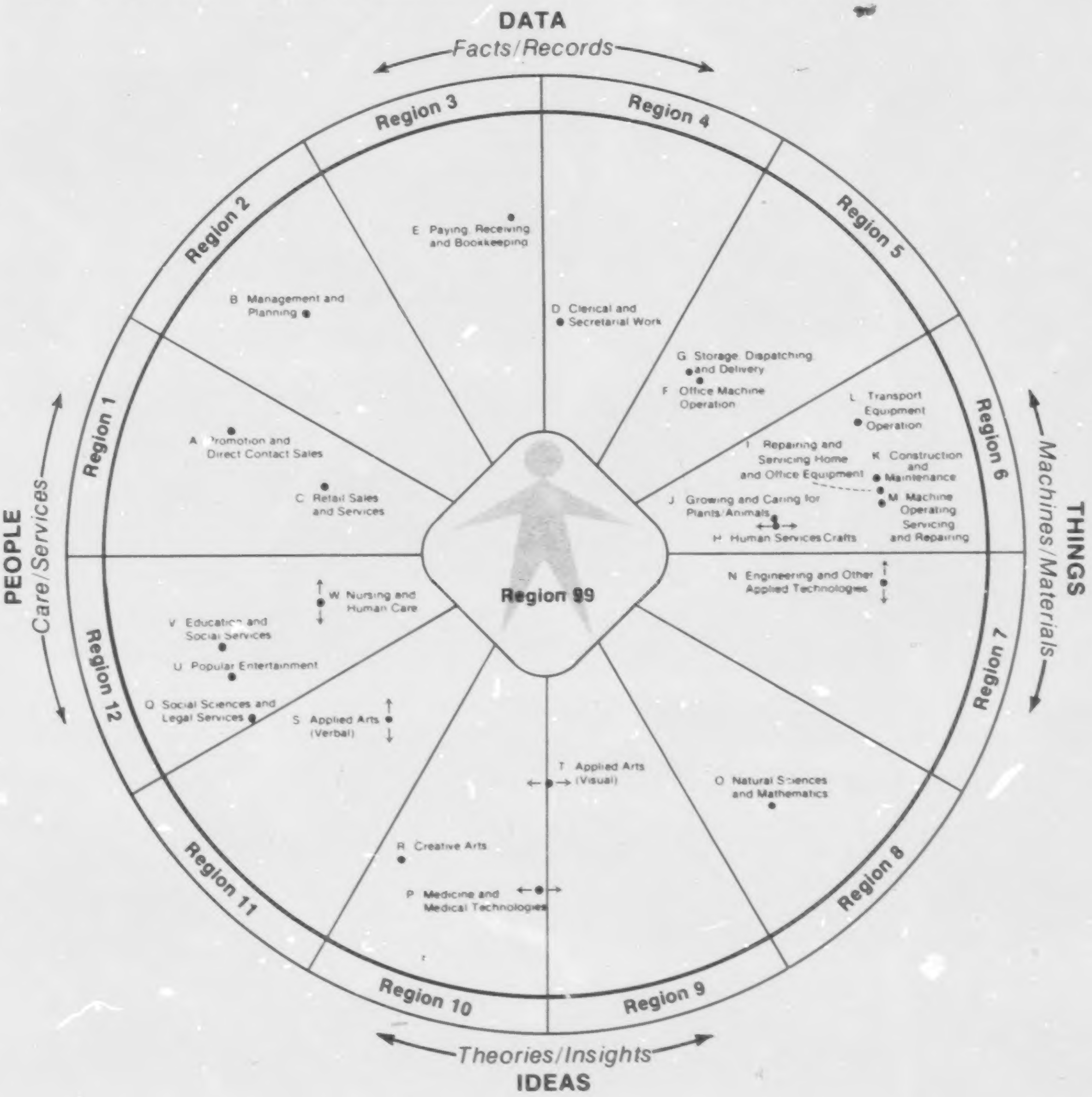
Intercorrelations for the CPP 8-11 Ability Scales are presented in Tables 4.30 and 4.31. The data in Table 4.30 show that there is little difference in scale structure for grades 8 and 11. Nine of the 15 correlations for both grade groups are .50 or less, indicating that the scales are relatively independent when compared to the correlations commonly obtained for paper and pencil tests. The highest correlations were obtained for Reading Skills, Numerical Skills, and Language Usage, all measures of various aspects of academic ability.

Similar results were obtained for separate sex groups as shown by Table 4.31. Mechanical Reasoning Scale correlations are generally higher for females than for the combined sex group, however, which probably reflects the substantial sex differences on this scale.

Correlations between the Ability Scales and the Interest and Experience Scales have not been reported. As one would expect, these correlations typically fluctuate in the range of .00 to .20, with exceptions occurring primarily for the technical and science areas. The highest correlation (.33) was obtained for technical experiences and the scores of the 11th grade sample on the Mechanical Reasoning Scale. The correlations of science experiences and interests with scores on the Reading Skills Scale were .28 and .31, respectively. Slightly lower correlations were obtained for the Numerical Skills Scale. In general, these results are in accordance with previous research which has repeatedly shown that scores on interest and ability measures are relatively independent.

This map locates Job Families in the World of Work according to their involvement with DATA, IDEAS, PEOPLE, and THINGS. Arrows by a Job Family show that work tasks often heavily involve both PEOPLE AND THINGS (← →) or DATA AND IDEAS (↕). Although each Job Family is shown as a single point, the jobs in a family vary in their location. Most will scatter near the point that is shown for the Job Family, however.

See your CPP Student Report (bottom, center) for the region of the map in which your interests fall.


DATA
Facts/Records
Region 3
Region 4
Region 2
Region 5
Region 1
Region 6
Region 12
Region 7
Region 11
Region 8
Region 10
Region 9
Region 99
PEOPLE
Care/Services
THINGS
Machines/Materials
Theories/Insights
IDEAS
E Paying, Receiving and Bookkeeping
D Clerical and Secretarial Work
B Management and Planning
G Storage, Dispatching and Delivery
F Office Machine Operation
L Transport Equipment Operation
A Promotion and Direct Contact Sales
C Retail Sales and Services
I Repairing and Servicing Home and Office Equipment
K Construction and Maintenance
J Growing and Caring for Plants/Animals
M Machine Operating, Servicing and Repairing
H Human Services Crafts
N Engineering and Other Applied Technologies
W Nursing and Human Care
V Education and Social Services
U Popular Entertainment
Q Social Sciences and Legal Services
S Applied Arts (Verbal)
T Applied Arts (Visual)
O Natural Sciences and Mathematics
R Creative Arts
P Medicine and Medical Technologies

Note.—Because not enough information was available, the following two Job Families in the Social, Health, and Personal Services Cluster are not on the map: X. *Personal and Household Services*, and Y. *Law Enforcement and Protective Services*. Jobs in both of these families tend to fall in the inner area of Regions 2 through 5.

Fig. 4.13. World of Work Map for Job Families.

TABLE 4.28

Interest and Experience Scale Intercorrelations for Grade 8 Males (N=438) and Grade 8 Females (N=443)

Scale	Interests						Experiences					
	1	2	3	4	5	6	1	2	3	4	5	6
Interests												
1. Social Service	—	65	58	24	64	56	44	32	25	02	29	32
2. Business Contact	45	—	77	38	45	54	38	40	34	09	21	29
3. Business Detail	35	70	—	42	44	51	31	33	35	08	20	23
4. Technical	29	56	49	—	27	27	16	18	13	44	12	11
5. Science	47	40	38	55	—	52	31	21	20	07	49	24
6. Creative Arts	40	43	22	43	39	—	33	26	25	07	27	51
Experiences												
1. Social Service	43	38	21	28	26	33	—	71	63	43	56	59
2. Business Contact	32	42	27	26	20	29	74	—	60	46	50	55
3. Business Detail	33	36	38	30	32	24	69	64	—	43	57	52
4. Technical	17	34	25	54	30	27	49	47	53	—	38	33
5. Science	28	29	21	33	55	32	52	47	59	56	—	50
6. Creative Arts	28	29	14	23	29	54	65	58	54	41	54	—

Note.—Correlations (decimal points omitted) are based on the same 10% norm group sample used in the study of reliability. Results for males appear above the diagonal.

TABLE 4.29

Interest and Experience Scale Intercorrelations for Grade 11 Males (N=462) and Grade 11 Females (N=468)

Scale	Interests						Experiences					
	1	2	3	4	5	6	1	2	3	4	5	6
Interests												
1. Social Service	—	47	46	12	48	50	51	33	24	-03	27	34
2. Business Contact	39	—	65	15	33	38	37	44	34	05	23	31
3. Business Detail	14	45	—	27	41	34	29	25	34	-01	20	22
4. Technical	23	32	22	—	21	17	09	05	13	57	07	08
5. Science	38	17	-01	39	—	43	23	21	38	16	62	30
6. Creative Arts	26	29	05	36	31	—	32	28	26	11	31	60
Experiences												
1. Social Service	47	40	07	15	17	19	—	69	57	26	43	57
2. Business Contact	33	35	07	07	19	13	65	—	60	22	39	54
3. Business Detail	22	24	21	18	21	10	55	50	—	39	63	54
4. Technical	16	21	09	51	21	17	40	25	48	—	35	30
5. Science	29	22	-05	26	58	28	46	41	52	43	—	54
6. Creative Arts	22	21	-04	23	26	57	47	44	44	34	49	—

Note.—Correlations (decimal points omitted) are based on the same 10% norm group sample used in the study of reliability. Results for males appear above the diagonal.

TABLE 4.30

Ability Scale Intercorrelations for Grades 8 (N=881) and 11 (N=930), Males and Females Combined

Scale	1	2	3	4	5	6
1. Space Relations	—	48	42	48	33	47
2. Reading Skills	43	—	55	69	57	42
3. Clerical Skills	39	50	—	56	45	20
4. Numerical Skills	48	66	51	—	52	41
5. Language Usage	34	60	46	55	—	26
6. Mechanical Reasoning	54	36	20	47	21	—

Note.—Correlations (decimal points omitted) are based on the same 10% norm group sample used in the study of reliability. Results for grade 8 appear above the diagonal.

TABLE 4.31

Ability Scale Intercorrelations for Grade 11 Males (N=462) and Grade 11 Females (N=468)

Scale	1	2	3	4	5	6
1. Space Relations	—	44	43	46	39	52
2. Reading Skills	48	—	47	64	59	41
3. Clerical Skills	41	51	—	55	44	27
4. Numerical Skills	51	70	50	—	59	42
5. Language Usage	38	60	45	57	—	30
6. Mechanical Reasoning	56	53	34	59	45	—

Note.—Correlations (decimal points omitted) are based on the same 10% norm group sample used in the study of reliability. Results for males appear above the diagonal.

Correlations with Other Measures

When studying the construct validity of a measure, it is often helpful to look at the relationships between the measure and other measures of similar and divergent characteristics. If the relationships with other measures are congruent with the expectations for the construct, then the construct validity of the measure is supported. Data on the relationships between the VIP Interest Scales and the Vocational Preference Inventory (Holland, 1965) are presented below. Following this, studies relating CPP 8-11 measures to other instruments (i.e., the Differential Aptitude Tests, the Kuder Preference Record, and the Ohio Vocational Interest Survey) are described.

Vocational Preference Inventory. As already noted, the VIP Interest Scales were designed to measure the six personal orientations proposed by Holland (1966) and assessed by Holland's Vocational Preference Inventory (VPI). If these two instruments are measuring the same interest dimensions, one would expect relatively high correlations between like-named scales and much lower correlations between dissimilar scales.

Data related to this concern were collected from 338 11th grade norm group students (193 males, 145 females) in two high schools. Approximately 6 weeks after taking the CPP 8-11, students were asked to complete the VPI as part of the ACT Guidance Profile (ACT, 1969). Results are presented in Table 4.32. The correlations between like-named scales range from .62 (Creative Arts with Artistic) to .35 (Business Detail with Conventional). Considerable discriminant validity is evident in that correlations between like-named scales are in all cases higher than correlations between dissimilar scales.

The overall level of correlation between like-named scales is not high. However, the observed correlations are very likely attenuated by the 6-week time interval between administrations. In addition, all of the VPI distributions are highly skewed, thus further reducing the level of linear relationship between the two sets of scores. Viewed in the context of these considerations, the correlations in Table 4.32 provide strong support for the construct validity of CPP 8-11 Interest Scales.

DAT, Kuder, and OVIS. The relationships between CPP 8-11 measures and three other guidance measures are described in this section, beginning with the Differential Aptitude Tests (Bennett, Seashore, & Wesman, 1966). Relatively high correlations between CPP 8-11 Ability Scales and DAT Scales developed to measure the same types of ability and relatively low correlations between scales developed to measure different abilities would

TABLE 4.32

Correlations between the CPP 8-11 Interest Scales and VPI Scales for Grade 11 Males and Females

	Vocational Preference Inventory Scales						**Stanines**	
CPP 8-11 Interest Scales	*Social*	*Enterprising*	*Conventional*	*Realistic*	*Intellectual*	*Artistic*	*Mean*	*S.D.*
Males (N=193)								
Social Service	43	22	16	09	21	26	5.1	2.0
Business Contact	27	38	28	06	12	16	5.2	1.8
Business Detail	24	30	35	14	18	12	5.0	1.8
Technical	-14	00	00	48	04	-05	5.1	1.8
Scientific	17	14	17	12	58	18	5.0	2.0
Creative Arts	22	21	07	12	23	62	5.0	1.9
Mean[a]	1.5	2.2	1.4	3.7	2.4	1.8		
S.D.	2.1	2.5	2.2	3.1	3.1	2.6		
Females (N=145)								
Social Service	53	07	-10	-02	16	14	4.8	2.0
Business Contact	20	36	12	02	00	04	5.0	1.8
Business Detail	07	18	51	-09	-08	-16	5.2	1.9
Technical	14	11	03	36	23	17	5.2	1.9
Scientific	19	04	03	18	56	14	4.8	1.9
Creative Arts	23	27	-13	28	24	61	4.9	1.8
Mean[a]	3.5	1.3	1.9	.8	1.3	2.2		
S.D.	3.1	1.8	2.1	1.4	2.2	2.9		

Note.—Decimal points have been omitted from the correlation coefficients. Results for similar scales are underlined.

[a] VPI scores range from 0 to 14.

tend to support the construct validity of both sets of scales. Information on this point is based on the DAT and CPP 8-11 scores of 370 9th grade students in two norm group schools. The DAT was administered in October, 1972, approximately 5 months before these students completed the CPP 8-11.

Correlations between DAT raw scores and CPP 8-11 Ability Scale stanines are reported for both schools in Table 4.33. Given the 5-month time interval between administrations, the correlations between like-named scales are surprisingly high; many are above .60. With few exceptions, these correlations exceed those for dissimilar scales and thus support the construct validity of the scales.

The correlations in Table 4.33 also show that, as intended, the CPP 8-11 Clerical Skills Scale is relatively complex with respect to the types of ability assessed. Numerical, language usage, and verbal abilities are each involved with correlations ranging in the .40's and .50's for corresponding DAT Scales. However, correlations between the DAT Clerical Speed and Accuracy Scale and the CPP 8-11 Clerical Skills Scale are substantial (.46 and .55 for the two schools) thus showing that this traditional type of clerical ability is also assessed.

TABLE 4.33

Correlations between the DAT and CPP 8-11 Ability Scales for Two Samples of 9th Grade Students, Males and Females Combined

DAT Ability Measures	**CPP 8-11 Ability Scales**					
	Space Relations	*Reading Skills*	*Clerical Skills*	*Numerical Skills*	*Language Usage*	*Mechanical Reasoning*
Space Relations						
School 1	65	39	34	44	30	45
School 2	52	43	23	50	39	45
Verbal Reasoning						
School 1	27	66	49	69	65	43
School 2	42	76	33	72	65	38
Clerical Speed & Accuracy						
School 1	03	15	46	16	19	02
School 2	27	39	55	33	35	11
Numerical Ability						
School 1	37	63	56	80	61	37
School 2	54	63	51	74	53	36
Grammar						
School 1	11	58	42	57	60	34
Spelling						
School 1	06	52	50	51	56	15
Mechanical Reasoning						
School 1	52	30	16	30	22	70
School 2	50	26	12	38	19	71
Abstract Reasoning						
School 1	33	35	32	49	38	37
School 2	52	55	43	62	54	39
School 1 (N=113)						
Mean	5.9	5.4	5.4	5.8	5.8	6.0
S.D.	1.7	1.6	1.6	1.8	1.7	1.6
School 2 (N=257)						
Mean[a]	6.1	5.4	5.3	6.1	5.7	5.9
S.D.	1.8	1.9	1.6	2.0	1.9	1.8

Note.—Decimal points have been omitted from correlations. Results for similar scales are underlined. School 2 did not complete the Spelling and Grammar units of the DAT.

[a] CPP 8-11 stanine scores.

Data relevant to the construct validity of the CPP 8-11 Interest Scales are provided in Table 4.34 where correlations between these scales and the Kuder General Interest Survey, Form E (Kuder, 1964) are shown. The correlations are based on the scores of 243 9th graders in one of the norm group schools. Students completed the Kuder approximately 8 weeks before taking the CPP 8-11. Since both the Kuder and the CPP 8-11 Interest Scales were designed to measure basic types of interests, relatively high correlations between scales purporting to measure similar types of interests should be obtained. Likewise, relatively low correlations should be obtained for dissimilar scales. These expectations are supported by the results presented in Table 4.34. In all cases, the correlations between similar scales are substantially higher than the correlations between dissimilar scales. The negative correlations in Table 4.34 probably result from the partial ipsativity of the Kuder scales.

Additional evidence concerning the construct validity of the CPP 8-11 Interest Scales was obtained by examining their correlations with the scales of the Ohio Vocational Interest Survey (OVIS) developed by D'Costa, Winefordner, Odgers, and Koons (1970). The 24 rationally derived scales of the OVIS are based on a model for grouping occupations according to their level of involvement with data, people, and things, as reported in the DOT. One scale was developed for each of 24 groups of occupations with scale content determined by the job duties typical of each occupational group. Thus, the 24 scales are occupation-oriented rather than person-oriented. That is, the scales were not constructed to measure basic types of human interests as were the CPP 8-11 Interest Scales. Instead, they were directly tied to the duties characterizing different types of occupations.

The OVIS was administered to 271 9th grade students enrolled in one of the norm group schools approximately 8 weeks before they completed the CPP 8-11 Interest Scales. Correlations between the two sets of scales are reported in Table 4.35. To aid in the interpretation of the results, the 24 OVIS scales have been grouped, on the basis of scale descriptions and item content, according to CPP 8-11 Interest Scale categories. Scales not easily classified were assigned to the miscellaneous category.

With few exceptions the OVIS scales correlate most highly with the corresponding CPP 8-11 Interest Scales. For example, the OVIS Clerical Work Scale correlates .70 with the CPP 8-11 Business Detail Scale and the OVIS Management and Supervision Scale correlates .59 with the CPP 8-11 Business Contact Scale. The level of correlations between scales is surprisingly high considering the relatively long interval between

TABLE 4.34

Correlations between CPP 8-11 Interest Scales and the Kuder General Interest Survey for Grade 9, Males and Females Combined (N=243)

	CPP 8-11 Interest Scales					
Kuder Scales	*Social Service*	*Business Contact*	*Business Detail*	*Technical*	*Science*	*Creative Arts*
Social Service	46	-03	-15	-15	-16	-07
Persuasive	04	40	10	-10	-19	-11
Clerical	-14	12	43	-09	-21	-35
Computational	-02	14	43	-04	09	-19
Mechanical	-20	-19	-16	58	00	-06
Outdoor	-15	-25	-14	30	-11	-18
Scientific	06	-02	-07	05	55	01
Artistic	-12	-10	-18	08	03	52
Literary	14	06	-02	-34	10	31
Musical	-05	00	-14	-16	01	31
Mean[a]	4.3	4.8	4.9	5.5	4.8	4.8
S.D.	1.9	1.8	1.9	2.0	1.9	2.0

Note.—Kuder scores were converted from percentile ranks to stanines prior to running correlations. Decimal points have been omitted from the correlation coefficients. Results for similar scales are underlined.

[a] CPP 8-11 stanine scores.

TABLE 4.35

Correlations between CPP 8-11 Interest Scales and the Ohio Vocational Interest Survey Scales for Grade 9, Males and Females Combined (N=271)

OVIS Scales grouped according to CPP 8-11 Interest Scale categories	CPP 8-11 Interest Scales					
	Social Service	*Business Contact*	*Business Detail*	*Technical*	*Science*	*Creative Arts*
Social Service Scales						
(4) Caring for People	55	26	14	21	19	16
(9) Nursing and Related Technical Services	58	29	17	12	38	18
(23) Teaching, Counseling, and Social Work	53	52	29	23	36	41
Business Contact Scales						
(3) Personal Services	17	41	42	15	-05	13
(8) Customer Services	29	60	54	25	11	24
(10) Skilled Personal Services	20	29	23	19	05	31
(17) Promotion and Communication	44	57	35	22	37	36
(18) Management and Supervision	26	59	46	30	31	26
(20) Sales Representative	21	57	44	30	29	20
Business Detail Scales						
(5) Clerical Work	06	39	70	-01	-07	04
(13) Numerical	07	29	44	20	34	02
Technical Scales						
(1) Manual Work	00	28	22	40	05	14
(2) Machine Work	03	28	13	56	17	11
(6) Inspecting and Testing	04	37	26	35	08	16
(7) Crafts and Precise Operations	09	36	21	59	27	25
(15) Agriculture	08	14	07	46	19	01
Science Scales						
(16) Applied Technology	20	36	21	45	48	33
(24) Medical	52	33	09	21	52	26
Creative Arts Scales						
(12) Literary	37	50	28	19	33	50
(19) Artistic	30	34	17	27	27	68
(21) Music	30	36	14	22	21	51
(22) Entertainment and Performing Arts	40	43	14	22	18	50
Miscellaneous						
(11) Training	43	52	28	37	29	40
(14) Appraisal	28	42	22	39	54	27
Mean[a]	4.1	5.1	5.1	4.7	4.8	4.4
S.D.	1.6	1.9	1.9	1.6	1.8	1.8

Note.—Decimal points have been omitted from the correlation coefficients. Results for similar scales are underlined.

[a] CPP 8-11 stanine scores.

administrations and the contrasting rationales on which the instruments are based.

Occasionally, relatively high correlations between an OVIS Scale and more than one CPP 8-11 Interest Scale were obtained. Usually, however, these correlations are in accordance with expectations; e.g., OVIS Management and Supervision with CPP 8-11 Business Contact and Business Detail, OVIS Medical with CPP 8-11 Science and Social Service, and OVIS Applied Technology with CPP 8-11 Science and Technical. In general, the pattern of correlations between these two sets of measures indicates a high degree of both convergent and divergent validity, thus providing further support for the construct validity of the interest dimensions measured by the CPP 8-11 Interest Scales.

The CPP 8-11 Exploration Priority System

Traditionally, self-exploration and the development of self-knowledge have been primary goals in the use of tests. Likewise, occupational exploration, as facilitated by a "school information service" and the "dissemination of occupational information," has been a long-standing vocational guidance goal. Accordingly, attention has been given to both of these concerns in the CPP 8-11 Student Report and in *Exploring: You and Your Career*. However, the CPP 8-11 Exploration Priority System was developed in the belief that self-exploration and career exploration should not be pursued independently. If test results are to be of real value in student career development, some method must be found to help students explore themselves *in relation to careers*, to bridge the gap between the self information provided by test scores and the career implications of this information. In a phrase, test results should be used to "facilitate self/career exploration."

Too often in the past, however, counselors have been provided with a test score profile, some general validity data, a few suggestions, and little else. They have been forced to rely almost solely on "clinical interpretation" in deriving implications from test results. Certainly, clinical interpretation plays an important role in any use of tests. However, counselors faced with serving hundreds of students in a career guidance program seldom have the time that clinical interpretation requires. Neither can most counselors, even with the best of training, be expected to possess the comprehensive and detailed knowledge of tests and the world of work that is required.

What is needed, it would appear, is a well-defined, built-in procedure for helping counselors and students bridge the gap between a test score profile and its occupational significance. In the CPP 8-11, ACT has attempted to provide such a procedure, one that counselors can use as a point of departure for further work with individual students. This procedure, called the "CPP 8-11 Exploration Priority System" results in the "Exploration Priorities" appearing on the CPP 8-11 Student Report.

The CPP 8-11 Exploration Priorities are based on the rationale, as explicated by Prediger (1974), that a major role of tests in career guidance is to stimulate, broaden, and provide focus to career exploration. For this reason, the major purpose of the CPP 8-11 Exploration Priorities is to suggest to students job families they might want to look into, "to explore." As emphasized on the Student Report, the Exploration Priorities are not meant to set a limit on the jobs students explore, but rather to provide some leads on where to begin. The CPP 8-11 Student Report and *Exploring: You and Your Career* contain a number of suggestions for following through on these leads.

Students determine starting points for career exploration by following a series of four steps appearing on the front of the Student Report. These steps focus on the use of the "stars" (*'s) that are printed by computer next to the job families at the left of the Student Report. An example is shown in Figure 4.14.

The stars, or Exploration Priorities, are provided separately for Interests and Abilities. Because these two types of attributes are relatively independent, Exploration Priorities based on interests will not necessarily correspond with those based on abilities. The four steps for using the Exploration Priorities listed on the front of the Student Report take this into account. The manner in which CPP 8-11 Interest and Ability Scales are used to develop the Exploration Priorities is described in the sections that follow.

Exploration Priorities Based on Interest Measures

As previously noted, both theory and research indicate that work tasks and work orientations can be summarized by two basic and relatively independent bipolar dimensions—a data/ideas dimension and people/things dimension. The approximate positions of job families on these dimensions were shown by the World of Work Map

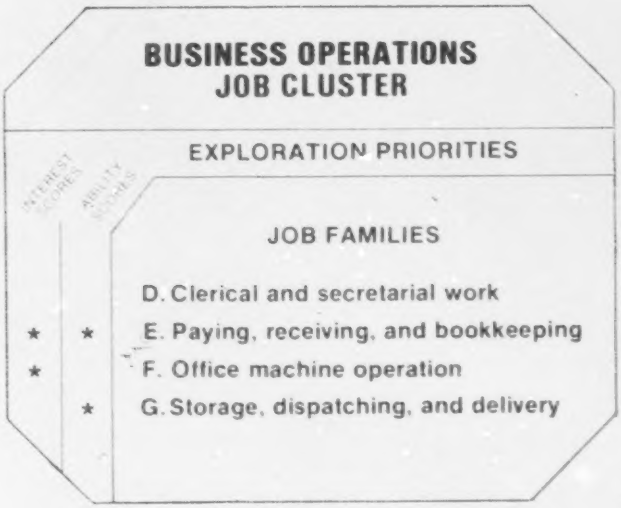

BUSINESS OPERATIONS
JOB CLUSTER
EXPLORATION PRIORITIES
INTEREST SCORES
ABILITY SCORES
JOB FAMILIES
D. Clerical and secretarial work
★ ★ E. Paying, receiving, and bookkeeping
★ F. Office machine operation
★ G. Storage, dispatching, and delivery

Fig. 4.14. Example of Job Cluster with Exploration Priority "Stars."

for Job Families in Figure 4.13. Principal components analyses of the six CPP 8-11 interest measures show that, when the effects of response level are removed, the job-related activity preferences of students can also be summarized by these dimensions. Thus, there is a common basis for comparing student activity preferences with the work tasks characteristic of the job families.

Equations obtained from the principal components analyses were used to translate student scores on the six Interest Scales to scores on the data/ideas and people/things dimensions. These equations assign weights to the six interest scores in order to derive scores on the two dimensions. For example, Business Detail scores are weighted heavily on the data/ideas dimension with high scores placing a student near the data end of the dimension. Likewise, students with high Social Service scores typically score near the people end of the people/things dimension.

In order to obtain Exploration Priorities based on interests, the relative standing of a student on the two dimensions is compared with the relative standing of each job family. Job families for which the correspondence is the greatest are indicated in the Exploration Priorities columns via the stars. Typically, five or six job families will be flagged for each student. The exact number may vary from student to student, however. For example, if students indicate that a job family contains their first or second occupational choice, a 1 or a 2 will appear in the interest and ability columns next to the job family. Since students are urged to give top priority to exploring these job families, the numbers appropriately replace any stars that might have been assigned on the basis of interest or ability scores.

A student's relative standing on the data/ideas and people/things dimensions is also used in conjunction with the "World of Work Map for Job Families." Near the bottom center of the Student Report is a box labeled "Your Region on the World of Work Map." In the box, a number corresponding to 1 of the 12 regions on the map is printed for each student. Part 5 of *Exploring: You and Your Career* urges students to look into job families in that region and others nearby. The translation of interest scores into regions on the map also provides students with a general picture of their standing on the data/ideas and people/things dimensions.

When student scores on the Interest Scales are inconclusive (e.g., the profile is flat or contradictory), the number "99" instead of a number corresponding to one of the regions is printed. Since a region 99 assignment also means that exploration priority stars cannot be assigned to the job families, alternative procedures for using the job family map to identify exploration priorities are suggested to students in this category. Readers are urged to review the information on these topics provided to students on the CPP 8-11 Student Report and in Part 5 of *Exploring: You and Your Career*. A report (Prediger & Roth, 1974) describing the development and functioning of the exploration priority system for interests can be obtained from the Publications Division of ACT.

Exploration Priorities Based on Ability Measures[6]

A somewhat different strategy was used to determine exploration priorities based on the CPP 8-11 Ability Scales. The basic goal was to relate these measures to the ability requirements of job families so that the exploration priority stars based on abilities, when coupled with interest stars, could be used to indicate points at which a student's career exploration might begin.

The first task in achieving this goal was to determine which of the abilities measured by the CPP 8-11 appeared to be required for most of the jobs in each job family. To accomplish this task, similarities were identified in content and construct between the CPP 8-11 Ability Scales and occupational tests which had been validated against measures of success in job training or in job performance. Then the literature was searched for information about the validity of these tests for jobs in each job family. Table 4.36 gives the primary links, as judged on the basis of test content and constructs, between the CPP 8-11 Ability Scales and the General Aptitude Test Battery (GATB), the Aircrew Aptitude Test Battery (AATB), the Ability Scales in the CPP 12-13,

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[6] Credit for suggesting this approach for using CPP 8-11 Ability Scales in career exploration is due Melvin Novick, Director of the Psychometric Research Department of ACT.

TABLE 4.36

Correspondence between CPP 8-11 Ability Scales and Other Measures Which Have Been Occupationally Validated

CPP 8-11	GATB[a]	AATB[b]	CPP 12-13[c]	DOT[d]	RMORS[e]	Ghiselli's review[f]
Language Usage Reading Skills	Verbal Aptitude	Reading Comprehension	Language Usage Reading Skills	Verbal Aptitude	Academic Ability	Verbal Intelligence
Numerical Skills	Numerical Aptitude	Numerical Operations I & II Arithmetic Reasoning	Numerical Comprehension Math Usage	Numerical Aptitude	Academic Ability	Arithmetic
Clerical Skills		Dial and Table Reading	Clerical Skills		Clerical Ability	Substitution
Space Relations	Spatial Aptitude	Spatial Orientation I & II	Space Relations	Spatial Aptitude	Artistic Ability	Spatial Relations
Mechanical Reasoning		Mechanical Principles	Mechanical Reasoning		Mechanical Ability	Mechanical Principles

References:

[a] General Aptitude Test Battery (U.S. Department of Labor, 1970)

[b] Aircrew Aptitude Test Battery (Thorndike & Hagen, 1962)

[c] ACT Career Planning Program, Grades 12-13 (ACT, 1972)

[d] Dictionary of Occupational Titles Worker Trait Components in Vol. II (U.S. Department of Labor, 1965)

[e] Revised Minnesota Occupational Rating Scales (Paterson, Gerken, & Hahn, 1953)

[f] (Ghiselli, 1966)

the worker trait components in the Dictionary of Occupational Titles (DOT), the Revised Minnesota Occupational Rating Scales (RMORS), and the tests reviewed by Ghiselli (1966).

The sources of data listed in Table 4.36 provided information about the relation of various types of tests to training or job performance. Using that information, judgments were made as to which of the six CPP 8-11 Ability Scales were most relevant to the requirements of the majority of jobs in each job family. In addition, the relative importance of the Ability Scales was indicated by assigning weights to the relevant scales. Table 4.37 shows the Ability Scales judged relevant to the requirements of each job family along with the weights assigned to those scales.

TABLE 4.37

Ability Scales and Weights Used in Determining Exploration Priorities for the CPP 8-11 Job Families

Job Families	Related CPP 8-11 Ability Scales and their relative weights[a]						Percentage of norm group students receiving ability stars
	MR	*NS*	*SR*	*RS*	*LU*	*CS*	
C. Retail Sales & Services		X		X		X	100
F. Office Machine Operation	X	X		X		X	100
G. Storage, Dispatching, & Delivery		X		X		X	100
H. Human Services Crafts		X		X			100
J. Growing & Caring for Plants/Animals		X		X			100
L. Transportation Equipment Operation	X	X	X	X			100
X. Personal & Household Services		X		X			100
W. Nursing & Human Care	1	1		2			90
A. Promotion & Direct Contact Sales		1		2	1		75
D. Clerical & Secretarial Work				2	1	1	75
E. Paying, Receiving, & Bookkeeping		2		1		1	75
I. Repairing & Servicing Home & Office Equipment	3	2	2	2			75
K. Construction & Maintenance	3	2	2	2			75
M. Machine Operating, Servicing, & Repairing	3	2	2	2			75
Y. Law Enforcement & Protective Services		1		2	1		75
N. Engineering & Other Applied Technologies	3	2	2	2			60
B. Management & Planning		1		2	1		40
P. Medicine & Medical Technologies	1	1		2			40
S. Applied Arts (Verbal)				2	1	1	40
V. Education & Social Services		1		2	1		40
O. Natural Sciences & Mathematics	1	3	1	2	1		25
Q. Social Sciences & Legal Services		1		2	1		25
R. Creative Arts							NA[b]
T. Applied Arts (Visual)							NA[b]
U. Popular Entertainment							NA[b]

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[a] MR = Mechanical Reasoning; NS = Numerical Skills; SR = Space Relations; RS = Reading Skills; LU = Language Usage; CS = Clerical Skills.

[b] No exploration priorities based on abilities are reported for job families R, T, and U because the abilities measured by the CPP 8-11 were judged relatively unimportant when compared with the creative and artistic abilities required in these job families.

Since all students receive ability stars for the first seven job families listed in Table 4.37, no Ability Scale weights are reported for these families. Instead, Xs are used to indicate the Ability Scales important for these job families. The weights in Table 4.37 are used to determine score composites for each of the other job families, however. For example, three Ability Scales, Numerical Skills (NS), Reading Skills (RS), and Language Usage (LU) are identified as relevant to Job Family A, Promotion and Direct Contact Sales. Using the weights assigned to each of these measures, a composite score (CS) for Job Family A can be obtained from the stanine scores as follows:

$$CS_A = NS + 2(RS) + LU$$

This means that in assigning ability stars to Job Family A, scores on the Reading Skills Scale receive twice the weight assigned to scores on the other two scales.

The next step in developing the system for assigning ability stars to job families was to specify cutoff points for the composite scores for each job family. These cutoff points are used as the criteria for determining when ability stars are to be assigned and are given in Table 4.37 in terms of the proportion of students completing the CPP 8-11 nationally who would receive ability stars for that job family.

When viewed in relation to the interest stars, the system for assigning ability stars reflects the fact that most people are capable of performing many jobs in almost any job family, far more jobs than they would be interested in or happy performing. Thus, the function of the Ability Scales in determining exploration priorities is to identify job families which include many jobs the student is probably capable of performing; the Interest Scales, used jointly with the Ability Scales, provide additional focus to the exploration of job families.

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BARE ESSENTIAL RESOURCES FOR SUPPORTING A MINI-COURSE IN CAREER PLANNING

The following books, materials, and activities include resources identified as "bare essentials" for supporting the Mini-Course in Career Planning. They are recommended as a basic, low-cost library of resources to stimulate staff ideas and new approaches to career guidance, and to serve the basic information needs of students. Many additional resources, including films and materials in other media, are annotated in Appendix B: A Guide for Increasing Student Career Development.

A. Career Education Guides and Idea Resources

Many "how-to-do-it" guides for career education are being developed. We have included one set of guides which provides detailed suggestions for a K-12 career development program. Selected units of Volumes II and III are annotated in Part 2A of Appendix B of this handbook.

Ryan, Charles W. *Career Education Program,* Volume I, Kindergarten—Grade 6. Boston: Houghton Mifflin Co., 1973.

This source book provides learning units and materials for use by teachers or counselors in facilitating self-awareness and an examination of the work world by elementary school children. Emphasis is given to concepts such as: changes in self-concept and in work world are continuous; each individual develops his own goals; and interests can be a starting point for looking at work world opportunities.

Saltzman, Glenn A. *Career Education Program,* Volume II, Grades 7-9. Boston: Houghton Mifflin Co., 1973.

This source book provides learning units and materials for use by counselors and teachers in facilitating career exploration by junior high school students. Three units (16 lessons) include: A Look at Yourself, A Look at the World of Work, and You and Your Career Plans.

Wysong, H. Eugene. *Career Education Program,* Volume III, Grades 10-12. Boston: Houghton Mifflin Co., 1973.

This source book provides learning units and materials for use by counselors and teachers in facilitating career planning by senior high school students. Activities include: a career choice game, talking with graduates, considering educational options.

Career Education Resource Guide. Morristown, N.J.: General Learning Press, General Learning Corporation, 1972.

This guide contains well over 100 lesson-approach outlines with suggestions for activities to aid in presenting specific career education concepts to students. A chart identifies page numbers for activities related to each of 21 career education concepts, suggesting target age levels and related school subject areas in which the concept and activity may be appropriate for use.

B. Occupational Information Sources

If you are going to buy just one book, be sure you have the most recent edition of this one:

The Occupational Outlook Handbook. Washington, D.C.: U.S. Government Printing Office. Cost: $6.25 for 1972 edition.

Revised every 2 years by the U.S. Department of Labor, Bureau of Labor Statistics, this 860-page handbook provides a comprehensive overview of occupational requirements and opportunities and is designed and written for use by students. Over 800 occupations are discussed, with information entries organized to include the nature of the work, education required, earnings, working conditions, and employment outlook. (New edition to be available in 1974.)

The Bureau of Labor Statistics also issues the *Occupational Outlook Quarterly* to provide up-to-date information about occupational developments between editions of the *Handbook*.

If you would like to set up a file of occupational briefs, consider this resource:

Occupational Outlook Reprint Series. A set of over 140 bulletins which are reprints of sections of the *Occupational Outlook Handbook* (approximately $20).

Commercially available occupational briefs are also offered by the following publishers:

Careers, Inc., P.O. Box 135, Largo, Florida 33540.

Chronicle Guidance Publications, Inc., Moravia, New York 13118.

Science Research Associates, Inc., 259 Erie Street, Chicago, Illinois 60611.

The occupational briefs or reprints for each of these four occupational information sources are organized according to CPP 8-11 Job Families in Appendix C. Hence, Appendix C can be used to develop an occupational file that provides a comprehensive picture of the jobs and opportunities in each job family. Several suggestions for increasing the effectiveness of your occupational information files are also provided in Appendix C.

C. Directories of Information for Students

Postsecondary Education

Lovejoy's Career and Vocational School Guide. New York: Simon & Schuster, 1973. $3.95 (paperback), $7.95 (cloth).

Information about vocational and technical schools offering training in over 250 career areas.

Profiles of American Colleges. In two volumes. Woodbury, N.Y.: Barron's Educational Series, Inc., 1972. $5.95 (Volume 1), $4.95 (Volume 2).

Volume 1 includes data on admissions, student life, programs of study, tuition, and financial aid. All accredited 4-year undergraduate colleges are described. *Volume 2* features an index to the major programs of study at all the accredited 4-year colleges, with listings of schools with nontraditional learning programs, external degree programs, 3-year degrees, general studies majors, and many more.

Guide to the Two-Year Colleges. In two volumes. Woodbury, N.Y.: Barron's Educational Series, Inc., 1972. $3.95 (Volume 1), $2.50 (Volume 2).

Volume 1 includes descriptions of commuter and residential 2-year colleges and a section describing 4-year colleges which offer 2-year degree programs. *Volume 2* includes an index to the major programs of study in the 2-year colleges.

Financial Aids

Need a Lift? The American Legion (Dept. S, P.O. Box 1055, Indianapolis, Ind. 46206), 1973. $.50 prepaid.

An annually revised, inexpensive, 128-page handbook published to help students, parents, and counselors obtain information on careers and scholarships.

D. Local Resources for Career Development

Career guidance activities which can be adapted to local needs include the following: career conferences, field trips, guidance groups, role playing, modeling, and value clarification. Each of these resources is described in greater detail in Part 2C of Appendix B. Many of these guidance activities can be planned and organized with the aid of a telephone.

Consider, also, the resource potential of community agencies such as public libraries and state employment service offices. Youth programs such as Explorers, Scouts, YMCA, YWCA, Junior Achievement, 4-H, etc., often sponsor career-related activities. Also, check with your state department of education about guidance services and materials available to schools.

APPENDIX B

A GUIDE FOR INCREASING STUDENT CAREER DEVELOPMENT

The major purpose of this guide is to provide users of the Career Planning Program 8-11 (CPP 8-11) with a variety of suggestions for enhancing specific aspects of student career development. Suggestions most relevant to student needs can then be localized and integrated into the school's ongoing guidance program.

Included in this guide are annotated references to guidance curriculum units, group activities, films, kits, directories, and other materials already in existence and accessible to professionals in the field. These references are organized by type and keyed to the appropriate sections of the Content Outline for the Assessment of Career Development (ACD) instrument recently developed by ACT to measure several core aspects of student career development (see brief description in Part 2 of this handbook). Thus, CPP 8-11 users who are interested in improving a particular aspect of their students' career development—for example, career planning knowledge—can refer to the corresponding section (IIIA in this case) of the ACD Content Outline for references to appropriate activities and materials.

This guide does not provide a complete listing of activities and materials of value for increasing student career development. Furthermore, listing of activities and materials in this guide does not imply that they are the best or only resources available. Rather, the guide is meant to provide a convenient pool of examples and suggestions as a stimulus for local career guidance efforts that will be updated and expanded as new career guidance resources appear.

Part 1 of this guide is entitled "Career Guidance Activities and Materials Keyed to Core Components of Career Development." (pp. 98-99)

Part 2 provides an "Annotated Resource Guide" organized according to the following major categories:

A. Curriculum Units (pp. 100-101)
  1. Grades 7-9
  2. Grades 10-12
B. Specific Career Guidance Activities (pp. 102-104)
  1. Grades 7-9
  2. Grades 10-12
C. General Career Guidance Activities (pp. 105-106)
D. Filmstrips, Films, Tapes, and Games (pp. 106-110)
E. Reference Materials on Occupations (pp. 110-111)

Part 3 entitled "General Resources" lists career guidance resources too comprehensive to be keyed to specific sections of the ACD Content Outline. The following major categories are used:

F. Curriculum Guides and Resource Materials (p. 112)
G. Text books and Workbooks for Students (p. 113)
H. Articles Describing Career Guidance Practices (pp. 113-114)
I. Career Guidance Texts for Counselors (pp. 114-115)

PART 1

CAREER GUIDANCE ACTIVITIES AND MATERIALS KEYED TO CORE COMPONENTS OF CAREER DEVELOPMENT

The column to the right of the ACD Content Outline indicates the sections of the "Annotated Resource Guide" (see Part 2 of this appendix) in which descriptions of guidance activities and materials pertinent to various components of career development can be found. For example, seven resources (A1b, A2a, B1m, B2a, B2b, E1f, and E3e) are listed for ACD Content Outline section IA1b—psychosocial aspects of occupations. By referring to the "Annotated Resource Guide," the reader will find that the first resource listed for this component of career development is entitled "Why Do People Work?" (see A1b). Other resources can be found in a similar manner.

Readers should understand that one resource may cover several components of career devleopment. However, some components are covered only in a peripheral way. Therefore, a particular resource may be listed in more than one section of the outline but not in all of the sections for which it is conceivably relevant.

Additional references to career guidance activities and materials can be found in Part 3 of this appendix. These references have not been keyed to sections of the ACD Content Outline because of their comprehensive nature.

ACD CONTENT OUTLINE	GUIDANCE ACTIVITIES AND MATERIALS (SEE PART 2 "ANNOTATED RESOURCE GUIDE")
I Occupational Awareness	
A. *Occupational Knowledge*	B2f, C1, C3, D2a, E1b-e, E2, E3a
1. Occupational Characteristics	A2b, A2d, B1g, B2j, C2, D1r, D2m, D3a-c, E1a
a. Duties	B1h, B2h, B2k, E2
b. Psychosocial aspects	A1b, A2a, B1m, B2a, B2b, E1f, E3e
c. Worker attributes	B1b, E1b, D3b
2. Occupational Preparation Requirements	A1k, A1l, A2f, A2g, B1k
B. *Exploratory Occupational Experiences*	A1k, A2c, B1a, B1e, B2g
1. Formal Experiences	
2. Informal Experiences	
C. *Occupational Knowledge by Clusters*	B1g B2d, B2f, B2l, D1g, D2a, D2x, D2y, E3d
1. Social, Health, & Personal Services	A1i, D1a, D1p, D2b, D2h, D2j
2. Business Sales & Management	A1f, D1b, D1n, D2e, D2i
3. Business Operations	A1e, B2k, D1c, D2d
4. Technologies & Trades	A1h, B2e, B2l, D1d, D2c, D2f, D2g, D2l
5. Natural, Social, & Medical Sciences	A1g, D1e, D2b
6. Creative & Applied Arts	A1d, D1f

[Continued]

ACD CONTENT OUTLINE	GUIDANCE ACTIVITIES AND MATERIALS (SEE PART 2 "ANNOTATED RESOURCE GUIDE")
II Self-Awareness	A1a, A2a, A2h, B1c, B2b, C4, C5, C6, D1g, D1j, D2p, D2q, D3d
III Career Planning and Decision Making	D2r, D2s, D4a
A. *Career Planning Knowledge*	C3, C5, D2q, D2w, E1c
1. Knowledge of Basic Career Development Principles	A1a, A2f, D2v
a. Continuous nature of career development and decision making	A2d, A2e, B1c, D4a, D4b
b. Impact of work on one's life	A1b, A2e, B1c, B1f, B2g, B2i, D2u
c. Multipotentiality of people for occupations	B1b, B1d, B1j
2. Knowledge of Reality Factors	B1, B1l, D1k, D1r, D2r
a. Post-high school education and training	A1i, B2m, D2l
b. Labor market functioning and trends	A1c, A1l, B1l, D1h, E1a
3. Knowledge of the Career Planning Process	A1j, B1d, B1n, D2l, D2s, D3d
a. When to start	
b. How to proceed	
B. *Career Planning Involvement*	A1j, A2f, B1a, D4a
1. Seeking Information	B2d, D2z, E1d, E1e
a. Reading, viewing, and consulting references	A2b, B2a, D1g, D3c, E3c
b. Talking and discussing	A2a, B2f, B2g, B2h, C1, C3, D2t
2. Doing and Experiencing	A2c, B1a, D4a
a. Observing workers and work settings	A2a, B1e, B2e, C2, D1
b. Engaging in self/career exploratory activities	A1k, A2g, B1k, B1n, B2b, B2c, D4c
c. Practicing employment-seeking skills	A2i, B2j, B2n, C4, D1i, D1q, D2n
3. Focusing Information and Experience Resources	A1a, B1h
4. Making Career Plans	A2e, D2o
a. Planning activities	
b. Self-evaluation of career planning	A1j, B1d, B1n

ANNOTATED RESOURCE GUIDE

A. Curriculum Units

1. GRADES 7-9

Saltzman, Glenn A. *Career education program.* Vol. II, Grades 7-9. Boston: Houghton Mifflin Co., 1973.

This sourcebook provides learning units and materials for use by counselors and teachers in facilitating student career development. Unit 1, A Look at Yourself, contains five lessons; Unit 2, A Look at the World of Work, contains six lessons; and Unit 3, You and Your Career Plans, contains five lessons. Each unit also has an enrichment exercise.

a. *Unit 1/Lesson 1: Where Am I Going?*

The two objectives of this lesson are: (1) to acquaint students with the purposes of a career guidance program; (2) to enable students to discuss their aspirations with other students.

b. *Unit 1/Lesson 3: Why Do People Work?*

Intended to elicit ideas which students have on why people work and to have them examine their own reasons for wanting to work.

c. *Unit 1/Lesson 4: What Kinds of Work Are There?*

Introduces major considerations regarding the current status of employment, significant labor market trends, and an understanding of occupational classifications according to several systems.

d. *Unit 2/Lesson 1: You and Artistic Occupations*

Students are provided an opportunity to survey artistic occupations including journalist-reporter, musician, and photographer. (Each of the six lessons in Unit 2 considers those occupations identified by Holland as representing a particular orientation toward work.)

e. *Unit 2/Lesson 2: You and Conventional Occupations*

Conventional occupations such as file clerk, library assistant, receptionist and typist are introduced and students are given assistance in identifying those which are of most interest to them.

f. *Unit 2/Lesson 3: You and Enterprising Occupations*

Enables students to use the *Dictionary of Occupational Titles* and to survey occupations such as banker, salesperson, and airline steward or stewardess.

g. *Unit 2/Lesson 4: You and Investigative Occupations*

Students are provided the opportunity to review occupations such as chemist, dentist, and psychologist.

h. *Unit 2/Lesson 5: You and Realistic Occupations*

Realistic occupations such as baker/cook, forester, bricklayer, and jeweler are the focus of attention in this particular lesson.

i. *Unit 2/Lesson 6: You and Social Occupations*

Students are introduced to social occupations and are given help in identifying those which interest them most. Athlete, social worker, physical therapist, and teacher are among the nearly 75 occupations presented in this lesson.

j. *Unit 3/Lesson 1: The Making of a Decision*

Students are given an introduction to the various steps in decision making and are encouraged to identify personal and environmental factors which influence decisions. The "fishbowl technique" is utilized. Students also prepare outlines of how the career choices might occur in various situations.

k. *Unit 3/Lesson 2: You and Your High School Education*

One of the objectives of this lesson is to relate courses of study and school activities to career decisions.

l. *Unit 3/Lesson 3: You and Your Post-High School Education*

The purpose of the lesson is to help students obtain a general acquaintance with post-high school educational opportunities, entrance requirements, and educational/training programs. Ten different types of post-high school educational opportunities are presented.

2. GRADES 10-12

Wysong, H. Eugene, *Career education program.* Vol. III, Grades 10-12. Boston: Houghton Mifflin Co., 1973.

This sourcebook is similar in objectives and format to the one by Glenn Saltzman cited previously. It contains 4 units and 14 lessons appropriate for students in grades 10-12.

a. *Unit 1/Lesson 3: Work Values and Goals*

This lesson is intended to help students understand various values and goals of work. Students are also assisted in examining their own work values and goals. They are encouraged to interview an employed person and to identify the work values of that person.

b. *Unit 1/Lesson 4: Areas of Work*

Students are provided exercises related to the want ad section of the newspaper to help them become aware of unfamiliar occupations and areas of work. Twenty-two different areas of work are explored.

c. *Unit 1/Lesson 5: Exploring Occupations*

Effective ways of obtaining occupational information are presented. Various activities such as field trips, establishing a placement office, etc., are described to expand the exploratory aspect of this unit.

d. *Unit 2/Lesson 1: Workers and Their Jobs*

Procedures are described for obtaining occupational information through discussions with workers employed in various occupations. An overall objective is to demonstrate the developmental nature of a career.

e. *Unit 2/Lesson 2: Developmental Nature of a Career*

This exercise makes a person aware that there are various stages of vocational maturity.

f. *Unit 2/Lesson 3: Career Choice Game*

This activity is centered upon a game which enables students to conceptualize various elements involved in the career development of an individual.

g. *Unit 3/Lesson 1: Relating School Courses to the World of Work*

Jobs related to mathematics, science, English, social studies, art, and foreign languages are introduced to acquaint students with the occupational tasks related to their school courses.

h. *Unit 3/Lesson 2: Vocational Interests and Aptitudes*

The vocabulary and meaning of vocational interests and aptitudes are introduced along with data-people-things concepts.

i. *Unit 4/Lesson 3: Looking for a Job*

This lesson focuses on helping students develop job hunting and interviewing skills.

B. Specific Career Guidance Activities

1. GRADES 7-9

Career education resource guide. General Learning Press, General Learning Corporation, 250 James Street, Morristown, New Jersey 07960. (1972)

This comprehensive guide contains a description of specific classroom practices in career education. It was written by practitioners at all educational levels and from all sizes of schools. The guide is divided into three sections: kindergarten-elementary, the middle and junior high school, high school and adult. In addition to descriptions of specific procedures, each of the three sections contains an overview of content and materials appropriate to the age group.

a. *Overview and Introduction to the Middle/Junior High School Career Education Activities*, pp. 99-103.

Nine elements frequently found in career education resource units are described. The elements range from hands-on and minds-on activities to on-the-job visitations.

b. *It Moves, It Works*, pp. 108-109.

Two of the concepts presented are: (1) that careers require different knowledge, abilities, and attitudes; and (2) that different occupations are interrelated in many ways.

c. *The Me Nobody Knows*, pp. 111-112.

In this activity, the idea that every person is an individual with different abilities, interests, needs, and values is presented. This activity also points out that perspective on a person's best career direction develops over a long period of time.

d. *That's What I Want to Be*, pp. 113-114.

The basic concept introduced is that peop[illegible] have many kinds of careers that require different knowledge, abilities, and attitudes. The choice of a career frequently involves a compromise between greater and lesser needs which necessitates good planning.

e. *They've Been Some Places and Seen Some Things*, pp. 114-115.

The main concept developed is that work experience facilitates career decision making. The student, upon completion of this activity, will be able to relate a number of firsthand experiences with jobs and working people.

f. *Mississippi*, pp. 115-116.

In general this activity relates to the concept of the interdependency of a variety of occupations. It lends itself to interdisciplinary teamwork by social studies, geography, art, and language art teachers. Lifestyles of the past and the present are discussed.

g. *Career Corners*, pp. 177-178.

A career corner is defined as a mini-lab containing a variety of paraphernalia and information that relates to a single occupational cluster.

h. *What's My Line?* pp. 123-124.

The intent of this exercise is to enable students to name and characterize a wide range of diverse occupations. Reference books and reading materials about the world of work should be available to provide the students with backgrounds to enable them to participate in this adaptation of the television show "What's My Line?"

i. *Wheel of Fortune*, pp. 124-126.

Changes and conditions in the world which affect careers are the focus of this activity. Students learn about a broad range of eventualities that can affect careers and career planning.

j. *Probably We'll Live to See Machines Do It*, pp. 128-129.

In this exercise the students are placed in small groups to explore alternate careers for people in obsolete occupations. Students are directed to think of "families" of jobs with similar requirements.

k. *Who Needs It?* pp. 140-144.

In this exercise the major concept presented is that every career requires some special preparation. Students are asked to describe a variety of ways in which school subjects can be applied in the working world. This activity may be adapted for use with mathematics, science, foreign language, drama, art, typing, home economics, music, and a variety of other subjects.

l. *Survival Specialists*, pp. 148-149.

This exercise focuses on changes and conditions in the world that affect careers. For example, students are asked to identify and describe a number of occupations that have changed because of the need to improve man's use of the environment. Attention is directed to what individual workers do, how they are trained, how they feel about their jobs, and what more they hope to be able to do.

m. *The Other Side of Glamour*, pp. 158-159.

This activity is intended to give students a better balanced and objective description of occupations that are frequently glamorized. The suggestion is made that students select one of the glamour careers and explore it in some depth. Sources other than basic occupational information guides and kits are required and student initiative is encouraged.

n. *Abilities and Ambitions*, pp. 163-164.

A major objective of this activity is that students should be able to discuss a range of considerations that enter into career choice. This activity might also be adapted to an investigation of careers related to a variety of different subject-matter areas, to different emotional needs and qualities, to different physical handicaps, to different levels of education, etc.

2. GRADES 10-12

Career education resource guide. General Learning Press, General Learning Corporation, 250 James Street, Morristown, New Jersey 07960. (1972)

a. *Forty Newspapers Forty*, pp. 181-182.

The objective of this exercise is to provide students with descriptions of some of the geographical factors relevant to career choices. The exercise uses newspapers from major cities and rural areas in all parts of the country to compare factors such as wages for similar jobs in different locales, cost of living, weather, consumer goods and styles, political views, etc.

b. *Heraldry and Careers*, pp. 184-185.

In this activity the student identifies some of his personal traits and ideals (his "coat of arms"). One suggestion is that a unit in European History could be based upon the coat of arms tradition. The ways in which this tradition can be paralleled with various trades, occupations, or businesses help the student to relate "his" coat of arms to his career options. This is an example of career implications for a school subject that doesn't appear on the surface to be remotely connected to the world of work.

c. *Required Courses*, pp. 186-187.

This activity assists students in identifying high school courses required for entry into trade schools, colleges, or jobs. Students are instructed in procedures for developing brochures which describe the training offered at their particular high school and, more importantly, how these courses relate to post-high school experiences.

d. *Information, Storage, and Retrieval*, pp. 191-194.

In this activity the students learn to employ a variety of clustering concepts in evaluating occupations. This activity could be expanded to become a school-wide project. Students gather career information, organize it on job cards, and define a retrieval system for various facets of a job. For example, jobs could be organized into the six career clusters presented in the CPP 8-11.

e. *To Market, To Market*, p. 197.

This activity provides students with information about the immense variety of specialized occupations within a modern industry. It constitutes an interesting opportunity for field trips and for class visits by workers in the community. Part-time work and work-study arrangements are also suggested.

f. *Information Seminars and Beyond*, pp. 201-202.

The general concept introduced is that careers can be grouped in various ways into "families" which require similar activities and provide similar rewards. Seminar discussion groups might be formed around career clusters such as suggested in the CPP 8-11.

g. *Worker Interviews*, pp. 203-204.

This activity teaches that people change as they go through life and that career directions also change. The student is helped to recognize a comprehensive range of circumstances that enters into career selection and career satisfaction. Included in this activity are interviewing techniques.

h. *After Graduation*, pp. 205-207.

Attention is focused on gathering a variety of information from recent graduates. Various procedures for organizing and collecting the data are discussed.

i. *What Price Glory?* pp. 209-210.

The major concept presented is that a person's relationships with other people, with his employer, and with society, affect his own career as well as the careers of others. As an outcome of the activity, students should be able to demonstrate insight into the stresses imposed by increasing work responsibility and social visibility.

j. *Getting It Together*, pp.217-218.

As a result of this activity the student should be able to enumerate a range of typical job qualifications. One learning capsule suggests a role-playing situation between an employment counselor and a job seeker.

k. *Business Worlds within the School*, pp. 220-222.

One concept developed in this activity is that any career area has different levels of responsibility. A major performance objective is that the student will be able to describe in some detail the overall operation of the typical business.

l. *Trade Journal*, pp. 224-225.

This activity is directed at giving the student an in-depth accounting of related occupations within a career cluster. Basic activity is centered around developing a "trade journal" representing the special field of interest.

m. *What Is Available? What Else Can Be Done?* pp. 232-233.

The main focus of this activity is in developing a comprehensive training and education reference tool. A variety of sources are drawn upon in compiling a list of all of the educational and training sites within commuting distance of the school.

n. *Job Hunting*, pp. 236-237.

Expected outcome of this activity is that students will be able to list local agencies that provide help for job seekers and to describe good job search procedures. A variety of activities can be built around this unit including developing sample resumes, job application forms, and personal interview techniques.

C. General Career Guidance Activities

This section contains brief descriptions of six general career guidance activities. Following each description are references to articles and books which describe the activity in more detail. All references are cited in sections H and I of this guide. For example, the first reference under Career Conferences is H-1. This refers to the article by Demain and DuBato in section H, item 1.

1. CAREER CONFERENCES

Career Conferences are group meetings attended by students interested in a specific occupation or career. Participants meet with two or more local "experts" in that career to get a "feel" as well as the "facts" from different points of view. The key to effective career conferences is preplanning. A series of conferences may consist of 15 to 20 meetings during a year, with 3 or more meetings on 1 day in each of 5 or 6 months. Counselors and students working together can establish the topics, develop a master schedule, obtain the experts, and coordinate the general operation.

References: H-1, Demain; I-5, Herr; I-6, Hollis; I-10, Shertzer.

2. FIELD TRIPS

Field trips are educational experiences held outside the school for the purpose of providing students direct observations and personal contact with workers and actual settings. They provide the opportunity for large and small groups or individual students to observe and confer with persons performing work that is of special interest to them. When contacting a business or industry about a field trip, it is important to emphasize your students' interests in jobs and workers rather than products and processes. Whether the field trip involves sending a small group to a lawyer's office or a large group to an industrial plant the success of the experience will depend on how well it has been planned.

References: I-5, Herr; I-6, Hollis; I-7, Hoppock.

3. GROUP GUIDANCE

Group guidance includes activities related to presentation and discussion of information. Group guidance sessions are generally instructional and informative in nature and designed to help groups of students who need information about certain topics (financing post-high school education) or want assistance in problem solving and decision making (how to go about narrowing choices of jobs). This approach is particularly relevant to career development programs because of the on-going needs of students for information concerning self and their environments in career decision making. Teachers can conduct group guidance activities by discussing the career implications of the subject matter in their classes. A career exploration unit taught in classes by a counselor is another example of group guidance.

References: H-4, Healy; H-15, Johnson; H-20, Sinick; I-10, Shertzer.

4. ROLE-PLAYING

Role-playing consists of a student practicing some interpersonal behavior he or she wants to learn in a situation that is safe and supportive (in a classroom or the counselor's office). The student may play one role while a counselor, another student, or persons from the actual situation play related roles. This experience is intended to develop skills and insights related to the real life situations or roles being enacted. Frequently the role-playing is followed by a discussion of the feelings and reactions that those participating had about the experience. Role-playing is especially useful in helping students to explore interpersonal (e.g., employer-employee) relationships and to practice job interview skills.

References: I-5, Herr; I-6, Hollis; I-9, Krumboltz.

5. MODELING

Modeling is the process by which one person (e.g., a counselor, worker, or a student) illustrates "model" behavior (such as the correct way to apply for a job) to provide an example to be imitated by another person (the student). Older persons, former students, and other adults may also serve as models in a more general way by illustrating, through their career experiences, a desirable pattern of behavior over a period of time. Presentation of model behavior can be video-taped or live.

References: H-2, Hamilton; H-20, Communique; H-23, Stillwell; H-24, Thoresen; I-9, Krumboltz.

6. VALUE CLARIFICATION

The value clarification approach is the newest concept of the six general career guidance activities listed in this section. It is based upon the premise that it is important for each individual student to identify his or her current values, explore other available values, consciously select those values which are important to him or her and be able to act consistently with these values. The approach is experience-based and entails helping students learn how to clarify their values by participating in a series of structured activities. These activities can be used with large groups (a class), small groups (a group guidance setting), or with individuals (counseling sessions). It is relevant to career development since the decisions an individual makes about careers will be satisfying to the extent that they are consistent with the individual's values.

References: H-8, Miller; H-21, Simon; and I-11, Simon.

D. Filmstrips, Films, Tapes, and Games

1. FILMSTRIPS AND TRANSPARENCIES

Career Discoveries Series. Guidance Associates, Pleasantville, New York 10570. (1972)

This series introduces students to the diverse world of work and provides insight into why people enjoy specific types of work. There are six series of filmstrips organizing jobs into clusters with each series having four separate filmstrips and records. The first filmstrip in each series is an overview of the job interest cluster with the remaining three filmstrips containing interviews with real persons photographed and speaking "on the job." The series is based on Holland's personal orientations to work and parallels the six job clusters used in the CPP 8-11. The following titles are included:

a. *People Who Help Others*
b. *People Who Influence Others*
c. *People Who Organize Facts*
d. *People Who Make Things*
e. *People Who Work in Science*
f. *People Who Create Art*

Other filmstrips from Guidance Associates:

g. *Choosing Your Career*

There are two filmstrips in this series. Part 1 describes families of jobs organized according to Holland's six types of work orientations. Thus, it parallels the job cluster system used in the CPP 8-11. Part 2 helps students evaluate their personal characteristics and gain new perspectives on their educational and career possibilities.

h. *Preparing for the Jobs of the 70s*

This is a two-part filmstrip with records. Part I shows how trends in various areas will affect tomorrow's job markets. Part II highlights the projected job picture by examining space age occupations as well as the traditional areas of health and medicine, law, education, sales, and building trades.

i. *Your Job Interview*

Two filmstrips that show students how to prepare for a successful interview, how to organize and write a resume, and how to respond to questions by emphasizing experience most relevant to the job for which they are applying.

j. *The Job Attitude Series*

This series is a set of five-color, sound filmstrips that could be used as a part of a vocational unit or by individual students. The sequences cover the experiences of new workers on the job, the reasons for working, what to look for in a job, and what the job expects from the worker. The series is intended to help high school students explore personal and social values they must deal with as they enter the world of work.

Job Opportunities Now. Society for Visual Education, 1345 Diversey Parkway, Chicago, Illinois 60614. (1971)

This series has six separate filmstrips which have heavy emphasis on entry jobs for students interested in unskilled or semi-skilled jobs.

k. *Requirements in the World of Work*
l. *Achieving Success in the World of Jobs*
m. *Job Opportunities in the Supermarket*
n. *Job Opportunities in the Department Store*
o. *Job Opportunities in a Restaurant*
p. *Job Opportunities in a Hospital*

q. *Job Survival Skills*. Singer Educational Division, Educational Systems, 3750 Monroe Avenue, Rochester, New York 14603. (1973)

The program presents basic job related concepts via sound filmstrips. These concepts are reinforced by means of systemized activities observed and directed by a counselor or group leader. These activities include puzzle assembly, simulation games, brainstorming, group discussion, role-playing, peer evaluation, and individual assessment. Basic filmstrip input is reinforced with 42 job related exercises. Units include: Program Introduction, Education and Training, From Which Point of View, Self-concept and Employment, Communication, You and Your Supervisor, You and Your Co-workers, Successful Job Behavior (no filmstrip), Job Seeking Skills, Packaging Your Skills: Personal Appearance, Packaging Your Skills: Resume, Packaging Your Skills: Application, Packaging Your Skills: Interview, Summarizing, and Individual Assessment (no filmstrip).

r. *Careers by the Hundred*. Slides-Carousel-Cassette. Cube Corporation, 642 South Second Avenue, Covina, California 91722. (No date)

One hundred careers are included in this series (e.g., physician to meter reader). Each career contains a set of six colored slides and 2 minutes of narration.

s. Jacobson, T. J. *KNOW—Knowledge Needed to Obtain Work*. Chicago: Science Research Associates, 1973.

Sixty-four transparencies for use with an overhead projector show how to select a job and apply for it. They are organized into seven units: Selecting a Job, Finding Employment Openings, Filling Out an Application, Preparing to Take an Employment Test, Preparing for the Interview, Interviewing, and Following Up on Job Applications.

2. FILMS

Project WERC: Why Not Explore Rewarding Careers? Film Department, American Personnel and Guidance Association, 1607 New Hampshire Avenue, N.W., Washington, D.C. 20009. (1971)

This series of 12 films provides essential information about careers that do not require a 4-year baccalaureate degree. The authors indicate that the films have been tested successfully as a package with upper elementary, middle, junior, and senior high students and with dropouts. The film series includes:

a. *Work, What's It All About?* (30 min.)

This is the first film in the series and introduces the youth-oriented WERC programs by scanning a panorama of job families.

b. *Careers in Allied Health Services* (26 min.)
c. *Careers in Building Trades* (26 min.)
d. *Careers in Business and Office Occupations* (25 min.)
e. *Careers in Communications* (30 min.)
f. *Careers in Industry* (26 min.)
g. *Careers in Machine Trades* (29 min.)
h. *Careers in Personal Services* (29 min.)
i. *Careers in Sales—"The Joys of Selling"* (26 min.)
j. *Careers in Skilled Services* (25 min.)
k. *Careers in Transportation* (24 min.)
l. *How Do You Get There?* (26 min.)

The final film in the series provides tips on how to start looking for a job—newspaper ads, employment agencies, etc., how to apply, and how to approach an interview. There is also information on technical courses at 2-year colleges, apprenticeships, and on-the-job training.

m. *Opportunity Everywhere.* Vocational Films, 111 Euclid Avenue, Park Ridge, Illinois 60068. (1969)

This is a contemporary film with no narration. It is built around an integrated musical combo and a girl singer in a psychedelic setting. The middle verse of lyrics suggests that the viewer take a look around, find something he or she would like to do, and prepare for a meaningful place in life. Over 156 different occupations are shown including many with minority group participation.

n. *Job Interview: Whom Would You Hire?* Churchill Films, 662 N. Robertson, Los Angeles, California. (no date)

Film A: Three Young Women (17 min.)
Film B: Three Young Men (16 min.)

In each film, three young applicants are interviewed for trainee positions. The viewers are asked to evaluate the applicants as an employer would. The interviews provide content ranging from appearance and attitude of an applicant, to goals and long-range plans for employment preparation.

o. *It's Up to You.* Vocational Films, III Euclid, Park Ridge, Illinois 60068. (1969)

The film is related to the area of general career planning. It depicts the difficulty of career planning for a potential high school graduate and could be used to stimulate discussion in this area and with the decision-making process.

Career Development Series: Humanistic Guidance Learning Programs I. Mar Media, 4401 Centre Avenue, Pittsburgh, Pennsylvania 15213. (1970-71)

An effective approach to humanistic career development programs. Includes six films of 10-20 minutes each and basic instructional materials for each of the units. The units covered are:

p. Self-Awareness and Expectations
q. Motives for Getting a Job
r. Conflict and Compromise in Choice
s. Confronting and Making Decisions

t. Communication Problems
u. Life Style and Work

Another film from Mar Media:

v. *Louis.*

This film is a realistic, sensitive portrait of a young black student struggling with the career development process.

World of Work. McGraw-Hill Films, 330 West 42nd Street, New York, New York 10036. (no date)

The films in the *World of Work* series are specifically designed for non-college-bound students.

w. *Jobs in the World of Work: A Good Place to Be* (1969)
x. *Jobs for Men: Where Am I Going?* (1968)
y. *Jobs for Women: Where Are You Going Virginia?* (1969)
z. *Jobs and Interviews: Getting Started* (1969)

5. TAPES

a. *The World of Work.* Cassette Tape Series. Educational Resources, Inc., 47 W. 13th Street, New York, New York 10011. (no date)

The *World of Work* tapes consist of 6 discussion tapes and 14 tapes dealing with interpersonal relations on the job, rather than with a specific occupation. Titles such as "Don't Blow Your Cool," "Too Much Talk," "Supervisors Are Human Too," and "Money, Money, Money" indicate topics covered by the tapes. The tapes are meant to stimulate discussion and interaction. They are most appropriate for use with upper high school students and young adults and are especially appealing to minority groups.

b. *What's It Like?* Cassette Tape Series. John Colburn Associates, 1122 Central Avenue, Wilmette, Illinois 60091. (no date)

This is a unique series of career interviews made specifically for inner-city youth and ethnic minorities. In these tapes, the interviewer brings out in the person's own words the nature of the work, the demands of the job, its rewards (monetary and otherwise), the qualifications required, etc. The *What's It Like?* series consists of 24 cassette recordings. The cassettes contain 22 career interviews, plus a "preview sampler" and a taped interview with experienced guidance personnel giving many suggestions for the most effective uses of the series.

c. *Career Development Laboratory Tape Series.* Educational Progress Corp., 4900 S. Lewis, P.O. Box 45663, Tulsa, Oklahoma 74145. (no date)

Workers from 60 occupations are interviewed in this series of 30 tapes. Sixty percent of the jobs are in the nonprofessional category. These tapes may be used for general career exploration and information, or they could be incorporated into regular classroom teaching units to show the relatedness of a particular occupation to a specific subject.

d. *Motivation for Career Success.* Education Achievement Corporation, P.O. Box 7310, Waco, Texas 76710. (no date)

Includes 38 cassettes in a coordinated instructional system with manuals, schedules, and evaluative devices. Presents concepts critical to career success for junior and senior high school students. These six instructional modules provide the structure for the 30 lessons in this system.

1. Developing Commitment for Career Success
2. Developing Habits for Career Success
3. Developing A Life-Style for Intelligent Action
4. Developing Leadership Ability for Career Success
5. Planning for Career Success
6. Education for Career Success

4. GAMES AND EXPERIENCE KITS

a. Boocock, S. S. *Life Career Game*. Western Publishing Co., Inc., School and Library Dept., 850 3rd Avenue, New York, New York 10022, (1967).

The players walk through a span of 8 years in the future as decision makers for a fictitious person presented to them in the form of a profile or case history. Planning is in the form of decisions about how this person will spend a typical week during each of the 8 years. Players are on teams. Each team of decision makers is in competition with other teams working with the same profile. Periodically, players are fed back the consequences of their decisions in the form of scores or game points which are indicators of the relative satisfactions of the life they have planned.

b. Chapman, E. N. *Career Games*. Educational Progress Corporation, P.O. Box 45663, Tulsa, Oklahoma 74145.

A guidance tool for grades 8-13, designed as a classroom kit or individualized semiprogrammed activity in a resource center. The individual is taken on a career search in which he is confronted with unavoidable decisions.

c. Krumboltz, J. D. *Job Experience Kits, Grades 9-12*. Chicago: Science Research Associates, 1970.

The *Job Experience Kits* are a collection of work-simulation experiences in 20 representative occupations. In each kit students are given the opportunity to successfully solve problems typical to a particular occupation.

E. Reference Materials on Occupations

1. BOUND BOOKS OF OCCUPATIONAL INFORMATION

a. Angel, J. L. *Modern vocational trends reference-handbook*. (7 ed.) New York: Simon and Schuster, 1970.

This handbook offers information about occupations for which there are expanding career opportunities but which require preemployment training, and about those for which there is a large personnel demand due to shortages. Each occupation is carefully analyzed and described in relation to aptitudes and interests, job duties, necessary education and training, major fields of specialization, where employment is found, future employment prospects, positions open, advantages and disadvantages, professional sources of information, and other relevant topics.

b. U.S. Department of Labor, United States Employment Service. *Dictionary of occupational titles*. Washington: U.S. Government Printing Office, 1965.

A set of two volumes covering over 21,000 occupations. Contains job definitions, occupational classifications systems (including a system based on worker characteristics), and occupational profiles covering areas such as physical demands, working conditions, and training time.

c. Hopke, W. E. *The encyclopedia of careers and vocational guidance*. Chicago: J. G. Ferguson Publishing Co., 1972.

This two volume publication is designed for junior and senior high school students, their parents, and school counselors. It covers both career information and approaches to educational and career planning. Volume I, *Planning Your Career*, is intended as an overview of career planning ideas and a number of particularly important areas of work. Volume II, *Careers and Occupations*, is a reference book which provides information about specific occupations a student may want to explore.

d. *The occupational outlook handbook: Career information for use in guidance*. Washington: U.S. Government Printing Office, 1972.

This publication is printed every 2 years by the U.S. Department of Labor, Bureau of Labor Statistics. It brings together information on a variety of occupations organized according to thirty major industries. The information includes the nature of work, education required, earnings, working conditions, and employment outlook. The Bureau of Labor Statistics issues the *Occupational Outlook Quarterly* to provide current information about occupational developments between editions of the *Handbook*. The *Occupational Outlook Report Series*, a set of over 100 reprints of *Handbook* occupational descriptions is also available.

e. Forrester, G. *Occupational literature: An annotated bibliography*. New York: H. W. Wilson Co., 1971.

This bibliography has been prepared to assist in acquainting youth with sources of information about occupations and to assist teachers, counselors, and librarians in selecting materials for occupational collections.

f. Norton, J. L. *On the job*. Chicago: J. G. Ferguson Publishing Co., 1970.

On the Job is a source of psychosocial occupational materials. It is presented in a series of work diaries, written by actual employees. These first-person accounts show what a person must be equipped to do to get a job, as well as what he or she must be willing to do once they get it. Each diary reveals not only what the people do, but what they think about what they do.

2. KITS CONTAINING PRINTED OCCUPATIONAL DESCRIPTIONS

The following publishers are among the many that publish comprehensive sets of occupational descriptions in "kit" form.

B'nai B'rith Vocational Service, 1640 Rhode Island Avenue, N.W., Washington, D.C. 20036.
Career Associates, P.O. Box 505, Lansdale, Pennsylvania 19446.
Careers, Inc., P.O. Box 135, Largo, Florida 33540.
Chronical Guidance Publications, Inc., Moravia, New York 13118.
Occupational Awareness, Box 5098, Los Angeles, California 90055.
Science Research Associates, Inc., 259 East Erie Street, Chicago, Illinois 60611.

3. OTHER SOURCES OF CAREER INFORMATION

a. *Career World: The continuing guide to careers*. Curriculum Innovations, Highwood, Illinois 60040.

Published monthly during the school year, this publication focuses upon two career areas, plus other career ideas of interest to junior and senior high students.

b. *Careers for women*. Women's Bureau, Employment Standards Administration, U.S. Department of Labor, U.S. Government Printing Office, Washington, D.C. 20402.

Leaflets available include: Why Not Be a Medical Technologist? No. 44 (1971); Why Not Be a Public Relations Worker? No. 46 (1970); Why Not Be a Technical Writer? No. 47 (1971); Why Not Be an Apprentice? No. 52 (1971).

c. *El Ojo*, 1700 K Street N.W., Suite 1207, Washington, D.C. 20006.

A Chicano newsletter featuring new career information resources available to minority students.

d. *Popeye and . . . .* King Features, 235 East 45th Street, New York, N.Y. 10017.

King Features has Popeye starring in comic books related to 15 different career clusters.

e. *Vocational Biographies*. Sauk Centre, Minnesota 56378 (1970-1973).

Each biography (written in newspaper style) is the career story of a living person. In addition to providing a short description of the job each biography explores motivation, leisure time, mobility, and the life style of the person. Available by subscription service consisting of 7 volumes mailed during the year. Each volume contains 25 biographies. Currently there are 28 volumes available.

PART 3

GENERAL RESOURCES

F. Curriculum Guides and Resource Materials

1. Bailey, L. J. (Ed.) *Facilitating career development: An annotated bibliography.* Final Report. Springfield: Illinois State Board of Vocational Education and Rehabilitation, Vocational and Technical Education Division; Carbondale: Southern Illinois University, 1970.

2. *Career counseling: New perspectives for women and girls. A selected annotated bibliography.* Washington, D.C.: Business and Professional Women's Foundation, 1972

3. *Career education monograph series.* Raleigh: North Carolina State University, National Center for Occupational Education, 1973.

   Includes the following—A manual for the Implementation and Administration of Career Education Programs: Lower School Curriculum Guide; Upper School Curriculum Guide; Career Guidance; Student Placement and Follow-up; Professional Development.

4. *Career guidance: A handbook of methods.* Columbus, Ohio: Charles E. Merrill, 1973.

5. *Careers for women in the 70's.* Women's Bureau, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210.

6. *Choosing a career: A special guide of training film profiles.* Olympic Film Service, 161 West 22nd Street, New York, New York 10011.

7. *Counselors guide to manpower information: An annotated bibliography of government publications.* U.S. Department of Labor, Bureau of Labor Statistics, Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

8. Cunha, J. E., Laramore, D. L., Lowrey, B. L., Mitchell, A. M., Smith, T. W., & Wooley, D. C. (Eds.) *Career development: A California model for career guidance curriculum K-adult.* Fullerton, Calif.: California Personnel and Guidance Association, 1972.

9. *Drier, H., & Assoc. K-12 guide for integrating career development into local curriculum.* Worthington, Ohio: Charles A. Jones Publishing Co., 1972.

10. Dunn, J. A., Begle, E. P., Kaplan, R. M., Kroll, J., Melnotte, J. M., & Steel, L. *Career education: An annotated bibliography for teachers and curriculum developers.* Palo Alto, Calif.: American Institutes for Research, 1973.

11. *Educators guide to free guidance materials.* Randolph, Wis.: Educators Progress Service, 1972.

12. *Getting a job: A special guide of training film profiles.* Olympic Film Service, 161 West 22nd Street, New York, New York 10011.

13. Heiman, G., Jr., & Meyers, V. H. *Careers for women in uniform.* Philadelphia: L. B. Lippincott, 1971.

14. Morgan, R. L., Moore, A. B., Shook, M. W., & Sargent, B. (Eds.) *Synopses of selected career education programs: A national overview of career education.* Raleigh: North Carolina State University, National Center for Occupational Education, 1972.

15. Shertzer, B. *Teacher's guide to group vocational guidance.* Cambridge, Mass.: Bellman Publishing Co., 1971.

16. Vetter, L., & Sethney, B. J. *Women in the work force: Development and field testing of curriculum materials.* Final Report. Columbus, Ohio: The Ohio University, The Center for Vocational and Technical Education, 1972.

17. Walz, G. R., Miller, J. V., & Mintz, R. *Resources and programs for enhancing occupational exploration and career planning.* Ann Arbor: University of Michigan, School of Education, 1972.

G. Textbooks and Workbooks for Students

1. *Careerism: How to select a successful career.* Rochester, N.Y.: WWWWW/Information Services, Inc., 1971.
2. Darcy, R. L., & Powell, P. E. *Manpower and economic education: Opportunities in American economic life.* Joint Council on Economic Education, 1212 Avenue of The Americas, New York, New York 10036, 1972.
3. Denues, C. *Career perspectives: Your choice of work.* Worthington, Ohio: Charles A. Jones Publishing Co., 1972.
4. Gelatt, H., Varenhorst, B., & Carney, R. *Deciding.* New York: College Entrance Examination Board, 1972.
5. Kimbrell, G., & Vineyard, B. *Succeeding in the world of work.* Bloomington, Ill.: McKnight & McKnight, 1972.
6. Shertzer, B. *Career exploration and planning.* Boston: Houghton Mifflin Co., 1973.

H. Articles Describing Career Guidance Practices

These are only a few examples of types of articles that appear in the guidance literature.

1. Demain, C., & DuBato, G. S. CC-LSD: Career conference—let students do it. *The Vocational Guidance Quarterly,* 1970, **19,** 141-144.
2. Hamilton, J. A., & Bergland, B. W. A strategy for creating peer social models. *The Vocational Guidance Quarterly,* 1972, **20,** 271-278.
3. Hansen, L. S. A model for career development through curriculum. *The Personnel & Guidance Journal,* 1972, **51,** 243-250.
4. Healy, C. C. Toward a replicable method of group career guidance. *The Vocational Guidance Quarterly,* 1973, **21.** 214-221.
5. Heltebridl, F. Developing and operating the guidance clinic. *The Guidance Clinic,* Parker Publishing Co., Inc., West Nyack, New York, New York 10994. (June 1971)
6. Jacobsen, T. J. Career guidance centers. *The Personnel and Guidance Journal,* 1972, **50,** 599-604.
7. Johnson, L. A., & Martin, R. A career course. *The Personnel and Guidance Journal,* 1973, **51,** 733-744.
8. Johnson, R. G. Simulation techniques in career development. *American Vocational Journal,* 1970, **45,** 30-32.
9. Johnson, R. H., & Myrick, R. D. MOLD: A new approach to career decision-making. *The Vocational Guidance Quarterly,* 1972, **21,** 48-52.

10. Koch, J. H. An applied systems approach to career exploration. *The Vocational Guidance Quarterly*, 1972, **20,** 229-232.

11. Krumboltz, J. D., & Bergland, B. W. Experiencing work almost like it is. *Educational Technology*, 1969, **9,** 47-49.

12. Laramore, D. Counselors make occupational information packages. *The Vocational Guidance Quarterly*, 1971, **19,** 220-224.

13. Laramore, D., & Thompson, J. M. Counselors learn about the world of work. *The Vocational Guidance Quarterly*, 1970, **19,** 140-141.

14. Link, A. D. The view of Texas. *The Vocational Guidance Quarterly*, 1970, **19,** 134-139.

15. Miller, J. Value clarification. *Communique*, 1973, **2,** 62-63.

16. Parrish, J. B. College women and jobs: Another look at the 1970's. *Journal of College Placement*, 1971, **31,** 34-40.

17. Peterson, M. Occupacs for hands-on learning. *American Vocational Journal*, 1972, **47,** 40-41.

18. Salinger, M., & Wright, W. Videotape as a medium for vocational decision-making information. *The Personnel and Guidance Journal*, 1970, **49,** 205.

19. Schultz, M. W. Career exploration in summer school: Making sense through senses. *The Guidance Clinic*, Parker Publishing Co., Inc., West Nyack, New York, New York 10994. (June 1970)

20. Selecting peer social models. *Communique*, 1972, **2,** 18-20.

21. Simon, S. B. Values clarification—a tool for counselors. *The Personnel and Guidance Journal*, 1973, **51,** 614-619.

22. Sinick, D., Gorman, W. E., & Hoppock, R. Research on teaching of occupations: 1965-1970. *The Vocational Guidance Quarterly*, 1971, **20,** 129-137.

23. Stillwell, W. E., & Thoresen, C. E. Social modeling and vocational behaviors of Mexican-American and non-Mexican-American adolescents. *The Vocational Guidance Quarterly*, 1972, **20,** 279-286.

24. Thoresen, C. E., & Hamilton, J. A. Peer social modeling in promoting career behaviors. *The Vocational Guidance Quarterly*, 1972, **20,** 210-216.

I. Career Guidance Texts for Counselors

1. Borow, H. (Ed.) *Career guidance for a new age*. Boston: Houghton Mifflin Co., 1973.

2. Chick, J. M. *Innovation in the use of career information*. Boston: Houghton Mifflin Co., 1970.

3. Hansen, L. S. *Career guidance practices in school and community*. Washington: National Vocational Guidance Association, 1970.

4. Herr, E. H. (Ed.) *Vocational guidance and human development in a changing world of work*. Boston: Houghton Mifflin Co. (early 1974).

5. Herr, E., & Cramer, S. *Vocational guidance and career development in the schools: Toward a systems approach.* Boston: Houghton Mifflin Co., 1972.

6. Hollis, J. W., & Hollis, L. U. *Personalizing information processes: Educational, occupational, and social.* New York: Macmillan Co., 1969.

7. Hoppock, R. *Occupational information.* New York: McGraw-Hill Book Co., 1967.

8. Isaacson, L. *Career information in counseling and teaching.* (2nd ed.) Boston: Allyn & Bacon, 1971.

9. Krumboltz, J. D., & Thoresen, C. E. *Behavioral counseling: Cases and techniques.* New York: Holt, Rinehart, and Winston, Inc., 1969.

10. Shertzer, B., & Stone, S. *Fundamentals of guidance.* (2nd ed.) Boston: Houghton Mifflin Co., 1971.

11. Simon, S., Howe, L., & Kirschenbaum, H. *Values clarification: A practical handbook of strategies for teachers and students.* New York: Hart, 1972.

12. Wolfbein, S. *Occupational information.* New York: Random House, 1968.

A GUIDE TO DEVELOPING AND USING A CAREER INFORMATION FILE ORGANIZED AROUND THE JOB FAMILIES OF THE CPP 8-11

To assist students in considering the many occupations in the world of work, the Career Planning Program provides a system for organizing occupations into 25 job families. Because many students may wish to explore specific occupations in the job families, counselors may find it useful to develop folders of occupational information related to each job family. To help counselors develop occupational information systems most useful to students using the CPP 8-11 materials, this appendix provides several suggestions about compiling and using occupational files and organizes code numbers for four sets of occupational briefs and the DOT Worker Trait Groups according to the CPP 8-11 Job Families.

Several additional ideas you may wish to consider about occupational files:

1. Develop a standard form for placement inside the front cover of each job family folder to reference ways to tap other local sources of career information; e.g., tape recordings, career films, filmstrips, teachers or community people willing to discuss particular careers, etc.
2. Occupational information is only one part of the picture which students need when exploring careers. Consider developing folders on additional topics such as: job trends and outlook; special groups in the labor force (minorities, handicapped, women); job training avenues (on-the-job, military, apprenticeships); job hunting and interviewing techniques; etc.
3. Consider several questions about the most effective setting for the occupational file(s). Where should the file be located to be most accessible to students? Will someone be available to help students use the file? Is there a place for students to spread out the materials? Can they easily check out the materials? Does the location encourage browsing, such as in a career corner in the library or guidance office?
4. Make the area attractive, informative, and comfortable for students. Get materials out into the open whenever possible. A bulletin board with changing career displays, local want ads identifying entry level jobs, etc., may be helpful. A student newspaper column on careers or recent graduates could refer to related information in the occupational file.
5. Acquaint faculty members with the job family system and develop a mobile set of materials for use in the classroom. See Appendix D for a list of job families related to school courses.

In the charts on the next pages, code numbers for occupational briefs in four commonly available sets of occupational information (see Part B of Appendix A for addresses) and page numbers for related Worker Trait Groups in Volume II of the *Dictionary of Occupational Titles* have been organized according to the CPP 8-11 Job Families. Letters following the reference numbers indicate relevant briefs or reprints which are filed with other job families. For example, Occupational Outlook Reprint Number 118M (Apparel Industry) is referenced in Job Family A although it is actually filed with Job Family M, where a majority of its information is relevant. Counselors may wish to include a cross-reference card in each job family folder to acquaint students with related briefs filed with other job families.

CPP 8-11 Job Families and Related Occupational Briefs

CPP 8-11 JOB FAMILIES	OCCUPATIONAL OUTLOOK REPRINTS (1972-73)	CAREERS, INC. BRIEFS (1973)	CHRONICLE BRIEFS (1972)	SRA BRIEFS (1972-73)	DOT VOL. II WORKER TRAIT GROUP PAGES (1965)
A Promotion & Direct Contact Sales	3, 60, 62, 63, 70, 138, 61C, 118M	B4, B35, B50, B64, B114, B124, B173, S17, S49, S58, S71, S137, S185, S194, S199, S232, S245, S252, S278, S312, S331, G50, G69	55, 61, 102, 113, 127, 136, 172, 202, 206, 209, 218, 254, 270, 299, 309, 325, 411, 417, 454, 8C	40, 63, 77, 100, 114, 118, 163, 165, 167, 169, 210, 237, 277, 298, 343, 347, 353, 364, 371, 372, 393, 219B, 257B, 268M	239, 408, 482, 486, 488, 245B, 375N, 406V, 484B
B Manage-ment & Planning	5, 21, 30, 49, 136, 139, 137E, 140D	B11, B18, B34, B36, B77, B81, B86, B89, B93, B131, B152, B159, B172, B178, B179, B189, B194, S9, S14, S38, S47, S118, S140, S144, S151, S162, S195, S198, S220, S227, S261, S268, S283, S297, S303, S324, S325, S328, S343, S345, S346, S21V, S97V	13, 38, 91, 95, 100, 108, 115, 121, 130, 152, 167, 253, 266, 272, 337, 350, 351, 355, 367, 371, 386, 442, 445, 448	46, 95, 96, 97, 98, 99, 132, 209, 219, 232, 234, 235, 255, 257, 271, 284, 313, 339, 350, 357, 368, 72D, 117C, 164D, 293V	237, 245, 248, 484, 241V, 252E, 294Q, 349V, 522S
C Retail Sales & Services	59, 61, 139B	S82, S148, S218, S314, G13, G30, G33, G78, G83	8, 15, 133, 307, 375, 108B	111, 113, 116, 117, 239, 240, 270, 319, 219B, 365M	493, 501, 503, 488A
D Clerical & Secretarial Work	53, 54, 56, 104	B17, B40, B43, B62, B94, B122, B164, B192, S27, S28, S52, S61, S73, S119, S142, S157, S280, S319, G6, G42, G54, G56, G57, G76, B93B	3, 19, 101, 102, 107, 122, 138, 189, 243, 257, 265, 268, 275, 293, 304, 335, 362, 220G, 375C	5, 18, 19, 72, 91, 93, 164, 252, 278, 300, 320, 328, 373	243, 254, 256, 258, 263, 276, 278, 282, 287, 289, 241V, 280E, 509X
E Paying, Receiving, & Book-keeping	2, 52, 137	B2, B65, S10, S35, S126, S158, S191, S219, S259, S310, G19, G40, G80, G88, B18B	50, 63, 73, 290, 333, 346, 102D, 293D, 375C	11, 12, 61, 94, 238, 251, 332, 387	252, 265, 267, 269, 280, 243D, 250V, 254D, 258D, 322M, 416Y, 468O, 491G, 501C

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CPP 8-11 Job Families and Related Occupational Briefs [*Continued*]

CPP 8-11 JOB FAMILIES	OCCUPATIONAL OUTLOOK REPRINTS (1972-73)	CAREERS, INC. BRIEFS (1973)	CHRONICLE BRIEFS (1972)	SRA BRIEFS (1972-73)	DOT VOL. II WORKER TRAIT GROUP PAGES (1965)
F Office Machine Operation	51, 58, 42N	B104, S39, S89, S127, S163, S244, S249, G67, B168N	9, 26, 93, 262, 274, 296, 308, 363, 102D	16, 17, 20, 261, 276, 322, 356	291, 274M, 280E, 287D
G Storage, Dispatching, & Delivery	55, 57, 108, 84M, 100L, 129N, 133M	B117, B119, B125, B187, S133, S146, G4, G10, G20, G52, G58, G68, G73, G79, G81, G82	78, 108, 169, 180, 220, 267, 282, 314, 321, 322, 380, 196M	110, 122, 158, 263, 266, 303, 341, 345, 352, 354, 117C, 163A, 173M, 268M	261, 271, 305, 491, 243D, 265E, 282D, 289D, 383N, 503C, 519L
H Human Services Crafts	64, 110, 66X, 120M, 136B	B61, B79, B106, S23, S76, S230, S231, S305, S306, G1, G2, G22, G29, G65, G71, S155J	1, 6, 7, 40, 44, 72, 168, 215, 250, 65M, 108B, 174M, 211M, 357M, 410M, 413M	21, 24, 112, 115, 157, 162, 383, 26M, 83M, 153M, 171M	308, 310, 499, 299V, 312M, 507X
I Repairing & Servicing Home and Office Equipment	85, 86, 87, 88, 90, 93, 94, 104, 134, 127M, 130N	B10, B28, B46, B47, B53, B102, B157, B181, B186, S91, S147, S179, S214, S226, S304, S313, S317, S329	48, 58, 67, 79, 90, 109, 134, 195, 214, 217, 219, 225, 313, 348, 364, 391, 424, 455	28, 58, 126, 130, 154, 179, 191, 200, 323, 333, 334, 359	312M, 486A
J Growing & Caring for Plants/ Animals	33, 36, 114	B52, B105, B107, B180, S24, S37, S75, S113, S145, S150, S155, S205, S256, S275, G5, G16, G38, G39, G41, S108V, S261B	88, 99, 112, 120, 201, 213, 223, 238, 248, 283, 291, 319, 341, 354, 404, 451, 416M, 441M	41, 42, 43, 44, 45, 47, 48, 49, 50, 149, 166, 190, 233, 330, 340, 369	351, 411, 511, 299V, 304G, 322M, 360M, 413O, 416Y, 427Y, 444L
K Construction & Maintenance	65, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 113, 103M	B23, B59, B66, B70, B116, B118, B156, B174, S6, S20, S30, S80, S121, S130, S203, S215, S216, S242, S254, S327, G24, G49, G64, G72, G75, G86	10, 20, 21, 43, 64, 86, 98, 147, 183, 230, 245, 285, 324, 359, 361, 383, 390, 392, 395, 401, 405, 418, 430, 449	14, 22, 23, 25, 87, 88, 101, 109, 170, 227, 231, 299, 306, 307, 336, 363, 81M, 82M, 124M, 223M, 365M	299V, 322M, 354Y, 360M, 420Y, 430M
L Transport Equipment Operation	100, 131, 135, 101M, 133M	B96, S88, S93, S170, S176, S177, S211, S223, S239, S257, S349	14, 42, 52, 140, 171, 263, 273, 280, 425, 380G	53, 57, 104, 128, 230, 344, 348, 110G	444, 519, 360M, 422N, 509X

M Machine Operating, Servicing, & Repairing	84, 89, 91, 92, 96, 97, 98, 101, 102, 103, 105, 106, 107, 109, 111, 115, 116, 117, 118, 120, 122, 123, 124, 125, 126, 127, 128, 133, 140, 83K, 121N, 129N	B3, B22, B41, B63, B69, B73, B76, B78, B80, B83, B85, B99, B113, B126, B138, B140, B145, B155, B158, B161, B163, B188, S26, S40, S44, S51, S56, S66, S68, S70, S86, S124, S139, S149, S154, S156, S160, S173, S178, S209, S212, S213, S235, S240, S246, S250, S251, S258, S263, S266, S270, S282, S284, S292, S294, S309, S323, S339, S348, G3, G7, G8, G9, G14, G17, G21, G25, G26, G29, G34, G35, G43, G44, G46, G55, G59, G62, G63, G66, G70, G74, G84, G89	27, 32, 33, 34, 37, 39, 45, 46, 47, 49, 56, 60, 65, 70, 81, 96, 106, 110, 118, 125, 131, 137, 142, 149, 173, 174, 182, 187, 188, 194, 196, 207, 208, 211, 222, 231, 234, 244, 252, 261, 279, 281, 286, 289, 301, 305, 306, 310, 315, 318, 323, 327, 328, 332, 338, 340, 349, 352, 353, 357, 360, 366, 369, 370, 373, 374, 378, 381, 385, 388, 398, 399, 410, 413, 414, 415, 416, 423, 426, 429, 434, 435, 438, 441, 444, 446, 451, 57N, 293D	26, 27, 29, 30, 51, 56, 59, 60, 81, 82, 83, 85, 89, 90, 102, 103, 105, 106, 108, 123, 124, 125, 127, 129, 151, 152, 153, 156, 159, 160, 171, 173, 174, 176, 177, 178, 192, 193, 194, 198, 199, 222, 223, 224, 225, 226, 228, 262, 268, 269, 279, 285, 287, 301, 304, 311, 314, 316, 327, 337, 342, 349, 351, 362, 365, 400, 109K, 164D, 221N	274, 312, 319, 322, 356, 360, 430, 433, 435, 447, 299V, 305G, 422N, 444L, 461X, 503C, 514N
N Engineering & Other Applied Technologies	22, 24, 28, 42, 47, 95, 112, 119, 121, 129, 130, 132, 115M, 116M, 117M, 122M, 124M, 125M, 127 M, 128M	B25, B56, B58, B100, B103, B108, B115, B123, B143, B144, B149, B153, B168, S12, S22, S31, S32, S62, S63, S78, S85, S90, S95, S98, S109, S112, S115, S117, S125, S135, S136, S143, S166, S171, S175, S182, S201, S207, S210, S221, S224, S228, S243, S288, S306, S322, S330, S334, S335, S340, G23, S24J	22, 29, 36, 57, 62, 68, 87, 103, 114, 151, 156, 158, 159, 160, 161, 163, 166, 175, 176, 197, 204, 221, 224, 227, 229, 240, 256, 284, 302, 312, 320, 326, 329, 330, 336, 356, 384, 397, 400, 403, 406, 420, 422, 431, 447, 56M, 137N, 174M, 188M, 207M, 279M, 289M, 323M, 328M, 337B, 340M, 360M, 369M, 370M, 378M, 380G	1, 2, 3, 4, 31, 33, 155, 195, 196, 201, 202, 203, 204, 205, 206, 207, 208, 214, 215, 221, 250, 253, 254, 260, 281, 282, 292, 302, 305, 310, 315, 346, 360, 381, 389, 397, 81M, 123M, 125M, 129M, 132B, 159M, 173M 176M, 178M, 219B, 224M, 225M, 226M, 228M, 269M, 357B	335, 339, 371, 375, 377, 379, 381, 383, 385, 422, 514, 516, 234R, 271G, 312M

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CPP 8-11 Job Families and Related Occupational Briefs [*Continued*]

CPP 8-11 JOB FAMILIES	OCCUPATIONAL OUTLOOK REPRINTS (1972-73)	CAREERS, INC. BRIEFS (1973)	CHRONICLE BRIEFS (1972)	SRA BRIEFS (1972-73)	DOT VOL. II WORKER TRAIT GROUP PAGES (1965)
O Natural Sciences & Mathematics	25, 26, 27, 39, 119N, 121N,	B15, B21, B26, B55, B74, B95, B101, B112, B120, B171, B184, S1, S3, S7, S18, S45, S59, S72, S81, S84, S99, S128, S132, S168, S181, S187, S189, S298, S300, S337, S352	66, 129, 132, 135, 141, 143, 148, 153, 162, 165, 179, 185, 190, 199, 200, 203, 210, 237, 276, 295, 344, 393, 421, 369M, 384N	66, 75, 131, 180, 182, 184, 188, 212, 213, 220, 248, 256, 258, 276, 294, 312, 318, 331, 338, 81M, 125M, 221M	413, 466, 468, 385N, 418P
P Medicine & Medical Technologies	6, 7, 10, 11, 12, 13, 16, 17, 18, 20, 23, 99, 8W	B19, B20, B29, B31, B33, B45, B51, B54, B57, B60, B127, B134, S5, S11, S19, S25, S34, S54, S107, S116, S174, S208, S279, S286, S287, S291, S344, S350, S353	5, 16, 18, 24, 31, 59, 71, 76, 77, 83, 85, 89, 111, 123, 146, 181, 186, 347, 437, 450, 452	32, 34, 37, 38, 68, 71, 74, 86, 136, 139, 146, 147, 211, 217, 241, 243, 247, 273, 288, 290, 375, 379, 380, 382, 386, 388	418, 464, 471, 473, 245B, 322M, 333W, 416Y, 477W, 486A
Q Social Sciences & Legal Services	37, 43, 45, 140D	B1, B6, B12, B91, B128, B166, S41, S101, S161, S202, S265, S299	94, 119, 144, 155, 233, 316, 339, 343, 346, 382, 456, 189D	9, 79, 137, 168, 185, 197, 366, 377, 385, 395, 164D	294, 425
R Creative Arts	40	B88, B147, B150, B160, S74, S248, S289	80, 124, 205, 303, 317, 394	62, 133, 141, 150, 291, 295, 309, 396	226, 232, 234, 392, 394, 396, 398, 496, 390U, 420Y, 524S
S Applied Arts (Verbal)	50, 132N	B7, B8, B30, B141, S13, S29, S33, S111, S123, S138, S338	28, 128, 178, 198, 212, 228, 365	65, 69, 143, 144, 216, 245, 286, 355, 361, 370, 399	387, 522, 524, 526, 528, 400U
T Applied Arts (Visual)	29, 32, 41, 36J, 118M, 128M	B9, B27, B82, B111, B136, S2, S15, S36, S43, S79, S120, S141, S152, S153, S197, S234, S236, S260, S326	2, 12, 23, 30, 51, 116, 126, 164, 226, 269, 271, 287, 289, 311, 137M, 338M, 378M, 385M	7, 8, 35, 64, 142, 181, 187, 259, 264, 275, 339, 398, 40A, 82M, 83M, 153M, 178M, 228M, 257B	228, 230, 232R, 234R, 371N, 377N, 514N
U Popular Entertainment	132N	B13, B154, B190	54, 128, 239, 242, 251, 294, 436	36, 280, 296, 133R	390, 400, 402, 404, 406, 245B, 250V, 305G, 351J, 394R, 396R

V Education & Social Services	4, 19, 31, 34, 35, 38, 44, 46, 48	B32, B37, B72, B97, B109, B133, B165, B170, B176, B185, S16, S21, S42, S46, S53, S55, S64, S69, S92, S97, S102, S103, S104, S106, S108, S114, S172, S186, S192, S193, S200, S206, S217, S222, S225, S229, S247, S269, S274, S281, S285, S290, S301, S311, S320, S336, S351, S354, B189B	82, 84, 92, 97, 104, 105, 117, 145, 157, 177, 184, 192, 216, 235, 236, 241, 246, 247, 249, 258, 264, 279, 288, 292, 331, 368, 377, 409, 427, 432, 440	6, 10, 39, 67, 78, 80, 92, 134, 135, 138, 140, 145, 183, 186, 189, 218, 242, 244, 246, 249, 282, 289, 293, 324, 325, 358, 374, 384, 391	241, 250, 296, 299, 337, 341, 343, 345, 347, 349, 226R, 237B, 245B, 333W, 335N, 339N
W Nursing & Human Care	8, 9, 14, 15	B14, B75, B84, B90, B92, S8, S65, S110, S169, S183, S184, S190, S315, S321, G27, G48, G85, G87, B31P	11, 25, 74, 75, 139, 193, 260, 278, 407	70, 73, 76, 119, 148, 236, 272, 378, 394	333, 475, 477, 479, 473P
X Personal & Household Services	66, 72, 129N, 136B, 139B	B16, B71, S50, S253, G11, G12, G15, G18, G31, G36, G37, G45, G47, G51, G60, G61	17, 41, 232, 358, 376, 387, 34M, 108B	13, 120, 175, 265, 267, 308, 317, 326	461, 505, 507, 509, 356M
Y Law Enforcement & Protective Services	67, 68, 69, 71	B121, B142, S48, S57, S87, S165, S180, S264, S273, S296, S302, G77	4, 69, 150, 170, 191, 207, 277, 298, 342, 412, 453, 293D, 449K	52, 54, 55, 107, 274, 297, 321, 335, 390, 164D	354, 416, 420, 427, 237B, 245B, 258D, 271G, 282D, 322M, 381N

If you would like to supplement your occupational file with free and/or inexpensive materials or identify related audio-visual aids, consider these resources.

Inform. Published 10 times a year by the National Career Information Center as a service of APGA ($15 per year, APGA members; $25 for nonmembers). Provides suggestions and discussions on the use of occupational information and includes a Career Resource Bibliography which identifies occupational pamphlets and films related to a career area theme in each issue.

NVGA Bibliography, Current Career Information, 1973 Edition ($2). This sixth edition NVGA resource book lists and evaluates over 2,800 career pamphlets, books, and films available from commercial and government sources.

Both of these resources may be ordered from the American Personnel and Guidance Association, 1607 New Hampshire Avenue, N.W., Washington, D.C. 20009.

APPENDIX D

CPP 8-11 JOB FAMILIES RELATED TO COURSE AREAS

Counselors may wish to provide packets of occupational information to teachers interested in introducing students to jobs related to specific subject areas. High school course areas are listed below with the codes for related Job Families. Folders of occupational information can be developed for each Job Family as outlined in Appendix C.

Course Areas	Related CPP 8-11 Job Families	Course Areas	Related CPP 8-11 Job Families
1. English, Creative Writing	Q, R, S, V	9. Office Practice, Typing, Business English, Bookkeeping, Office Machines, Keypunching	D, E, F, G
2. Speech, Dramatics	A, B, Q, R, S, U, V	10. Trade & Industrial Education, Industrial Arts, Mechanical Drawing	G, H, I, K, L, M, N, Y
3. Social Studies, Civics, Economics, Psychology, Sociology	A, B, C, Q, R, S, T, V, Y	11. Agriculture	J
4. General Math	A, C, D, E, G, J, K, L, M, T, Y	12. Health & Human Care	W, X
5. Algebra, Geometry, Trigonometry	I, N, O, P	13. Home Economics	A, H, W, X
6. General Science	I, J, V	14. Music, Band, Chorus	R, U
7. Biology, Chemistry, Physics	I, J, N, O, P, W	15. Art, Commercial Art	R, T, U
8. General Business, Economics, Distributive Education, Bookkeeping, Business Law	A, B, C, Q	16. Foreign Languages	S

APPENDIX E

RELATING CPP 8-11 JOB FAMILIES TO THE U.S. OFFICE OF EDUCATION CAREER CLUSTERS

As part of its recent career education efforts, the U.S. Office of Education has grouped all occupations into 15 industry-based career clusters. Each cluster cuts across a range of occupations with many occupations classified into more than one cluster. Because of their emphasis on visible and easily identifiable areas of economic enterprise (e.g., manufacturing, transportation, communications, and recreation), the USOE Career Clusters may be appropriate for use in elementary school career awareness programs designed to give students a broad overview of the world of work. However, junior high school students need to begin the difficult process of relating their personal characteristics—their goals, values, interests, abilities, etc.—to careers. This is greatly facilitated if occupations are grouped according to similar work tasks and work fields rather than industrial endeavor or area of economic enterprise. The CPP 8-11 Job Families provide such a grouping. The following table should help CPP 8-11 users determine the correspondence between USOE Career Clusters and CPP 8-11 Job Families. Unfortunately, at the time of writing, the 15 USOE Career Clusters were not fully documented or explicitly defined. Work sheets developed by the USOE Division of Vocational and Technical Education and dated April 1, 1971, were used in constructing the correspondence table, with the predominant occupational groups in each of the USOE Career Clusters receiving primary consideration in determining related CPP 8-11 Job Families.

Relating CPP 8-11 Job Families to the U.S. Office of Education Career Clusters

[Continued]

	U.S. Office of Education Career Clusters														
CPP 8-11 Job Families	Public Services	Hospitality and Recreation	Agri-Business and Natural Resources	Marketing and Distribution	Manufacturing	Business and Office	Transportation	Environment	Marine Science	Construction	Communications and Media	Health	Fine Arts and Humanities	Consumer and Homemaking	Personal Services
Business Sales & Management Cluster															
A. Promotion, direct contact sales		X	X	X											
B. Management & planning	X	X	X	X	X	X									
C. Retail sales & services				X											
Business Operations Cluster															
D. Clerical & secretarial work						X									
E. Paying, receiving, & bookkeeping				X		X									
F. Office machine operation						X									
G. Storage, dispatching, & delivery			X	X	X		X								
Technologies & Trades Cluster															
H. Human services crafts														X	X
I. Repair, service home/office equipment					X										
J. Growing & caring for plants/animals		X	X					X	X						
K. Construction & maintenance	X									X					
L. Transport equipment operation	X				X		X								
M. Machine operation, service, repair			X		X		X								
N. Engineering, applied technologies	X		X		X		X	X	X	X	X				
Natural, Social, & Medical Sciences															
O. Natural sciences & mathematics			X					X	X			X			
P. Medicine & medical technologies												X			
Q. Social sciences & legal services	X														
Creative & Applied Arts Cluster															
R. Creative arts		X									X		X		
S. Applied arts (verbal)		X		X							X		X		
T. Applied arts (visual)		X		X						X	X		X	X	
U. Popular entertainment		X													
Social, Health, & Personal Services															
V. Education & social services	X	X										X		X	X
W. Nursing & human care	X											X		X	X
X. Personal & household services														X	X
Y. Law enforcing/protective services	X														

APPENDIX F

CPP 8-11 NORMS

Norms for the CPP 8-11 assessment components are based on the weighted responses of a representative nationwide sample of 8th, 9th, and 11th grade students as described in Part 4 of this handbook. Norms distributions are available for each of grades 8 through 11 with grade 10 norms developed by interpolation. In view of the minor differences in norm group distributions across the grades, norms are reported here for grades 8 and 11 only. Photocopies of norms for grades 9 and 10 are available from the Research and Development Division of ACT. Readers are reminded that the CPP 8-11 scoring service eliminates the need for norms table look ups. The stanine score scale used in reporting CPP 8-11 results on the Student Report is discussed in Part 2 of this handbook.

Norms for grade 8 are provided in Tables F-1 through F-4, and for grade 11 in Tables F-5 through F-8. Ability Scale norms for each grade are based on combined sex groups. However, because of culturally-related differences in the interests and experiences of males and females, norms for the interest and experience scales are provided separately by sex. Separate sex norms mitigate the influence of sex role stereotypes on interests and as a result, a full range of career options is suggested to both boys and girls.

The response averages shown for the Interest Scales can be used to translate stanines on the Student Report to an approximation of how a student responded to the items on a given scale. For example, a stanine of 8 for a grade 8 boy on the Social Service Interest Scale corresponds to a response average of 3.9 to 4.2 on a 5-point scale where 1 equals "dislike very much" and 5 equals "like very much." Since a student who consistently answered "like fairly well" to the items on an Interest Scale would receive a response average of 4.0, the responses of the grade 8 boy in the example can be approximately summarized by this term. (See page 39 of *Exploring* for a fuller description of the interest level responses.) Thus, through use of the norms tables, counselors can relate a student's stanine scores to the level of interest expressed for an area. Similar procedures can be used with the Experience Scales.

TABLE F-1

Norms for CPP 8-11 Scales: **Grade 8 Males**

Interest Scales (Stanines and Associated Response Averages)

Stanine	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
9	4.3-5.0	4.0-5.0	3.9-5.0	4.7-5.0	4.5-5.0	4.5-5.0
8	3.9-4.2	3.6-3.9	3.5-3.8	4.4-4.6	4.2-4.4	4.1-4.4
7	3.5-3.8	3.3-3.5	3.1-3.4	4.1-4.3	3.7-4.1	3.7-4.0
6	3.2-3.4	3.0-3.2	2.8-3.0	3.8-4.0	3.3-3.6	3.3-3.6
5	2.8-3.1	2.7-2.9	2.4-2.7	3.3-3.7	2.9-3.2	2.8-3.2
4	2.5-2.7	2.3-2.6	2.1-2.3	2.9-3.2	2.4-2.8	2.4-2.7
3	2.0-2.4	1.9-2.2	1.7-2.0	2.5-2.8	1.9-2.3	1.9-2.3
2	1.5-1.9	1.5-1.8	1.3-1.6	2.0-2.4	1.4-1.8	1.5-1.8
1	1.0-1.4	1.0-1.4	1.0-1.2	1.0-1.9	1.0-1.3	1.0-1.4
Mean	2.9	2.7	2.5	3.4	3.0	3.0
S.D.	.8	.7	.7	.8	.9	.8

Experience Scales (Verbal Report Categories, Corresponding Stanine Interval(s), and Associated Response Averages)

Verbal report category	Corresponding stanine interval	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
Many	7-9	2.1-3.0	2.1-3.0	2.0-3.0	2.5-3.0	2.1-3.0	2.1-3.0
Some	4-6	1.6-2.0	1.5-2.0	1.4-1.9	1.9-2.4	1.5-2.0	1.5-2.0
Few	1-3	1.1-1.5	1.1-1.4	1.1-1.3	1.1-1.8	1.1-1.4	1.1-1.4
None	1	1.0	1.0	1.0	1.0	1.0	1.0
	Mean	1.8	1.8	1.7	2.1	1.8	1.8
	S.D.	.4	.4	.4	.4	.4	.4

Ability Scales (Stanines and Associated Raw Scores)

Stanine	Space Relations[a]	Reading Skills	Clerical Skills	Numerical Skills	Language Usage[a]	Mechanical Reasoning
9	35-40	37-40	34-35	23-25	41-48	28-35
8	31-34	34-36	33-33	21-22	37-40	25-27
7	27-30	31-33	28-32	18-20	35-36	21-24
6	21-26	26-30	23-27	15-17	32-34	17-20
5	16-20	21-25	17-22	12-14	29-31	15-16
4	14-15	16-20	12-16	10-11	25-28	12-14
3	11-13	12-15	7-11	8-9	20-24	10-11
2	8-10	9-11	5-6	6-7	15-19	8-9
1	0-7	0-8	0-4	0-5	0-14	0-7
Mean	19.6	23.0	19.4	13.5	29.4	16.2
S.D.	8.3	8.3	9.2	4.9	7.0	5.8

Note.—Interest and Experience Scale results for each grade level were developed separately for each sex. Ability Scale results are based on males and females combined.

[a] This scale was revised subsequent to the norming. The norms reported are estimates based on data collected in the equating study described on page 40.

TABLE F-2

Norms for CPP 8-11 Scales: **Grade 8 Females**

Interest Scales (Stanines and Associated Response Averages)

Stanine	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
9	4.8-5.0	3.9-5.0	4.3-5.0	3.8-5.0	4.3-5.0	4.8-5.0
8	4.6-4.7	3.6-3.8	3.9-4.2	3.3-3.7	3.9-4.2	4.5-4.7
7	4.4-4.5	3.2-3.5	3.6-3.8	2.9-3.2	3.4-3.8	4.2-4.4
6	4.1-4.3	2.9-3.1	3.2-3.5	2.5-2.8	3.0-3.3	3.8-4.1
5	3.7-4.0	2.6-2.8	2.8-3.1	2.1-2.4	2.5-2.9	3.4-3.7
4	3.3-3.6	2.3-2.5	2.4-2.7	1.8-2.0	2.1-2.4	2.9-3.3
3	2.9-3.2	2.0-2.2	2.0-2.3	1.5-1.7	1.7-2.0	2.5-2.8
2	2.4-2.8	1.6-1.9	1.6-1.9	1.3-1.4	1.4-1.6	2.0-2.4
1	1.0-2.3	1.0-1.5	1.0-1.5	1.0-1.2	1.0-1.3	1.0-1.9
Mean	3.8	2.7	2.9	2.3	2.7	3.5
S.D.	.7	.7	.8	.7	.9	.8

Experience Scales (Verbal Report Categories, Corresponding Stanine Interval(s), and Associated Response Averages)

Verbal report category	Corresponding stanine interval	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
Many	7-9	2.3-3.0	2.1-3.0	2.0-3.0	1.8-3.0	1.9-3.0	2.3-3.0
Some	4-6	1.7-2.2	1.6-2.0	1.5-1.9	1.3-1.7	1.4-1.8	1.7-2.2
Few	1-3	1.1-1.6	1.1-1.5	1.1-1.4	1.1-1.2	1.1-1.3	1.1-1.6
None	1	1.0	1.0	1.0	1.0	1.0	1.0
	Mean	2.0	1.8	1.7	1.5	1.6	1.9
	S.D.	.4	.4	.4	.3	.3	.4

Ability Scales (Stanines and Associated Raw Scores)[a]

Stanine	Space Relations[a]	Reading Skills	Clerical Skills	Numerical Skills	Language Usage[a]	Mechanical Reasoning
9	35-40	37-40	34-35	23-25	41-48	28-35
8	31-34	34-36	33-33	21-22	37-40	25-27
7	27-30	31-33	28-32	18-20	35-36	21-24
6	21-26	26-30	23-27	15-17	32-34	17-20
5	16-20	21-25	17-22	12-14	29-31	15-16
4	14-15	16-20	12-16	10-11	25-28	12-14
3	11-13	12-15	7-11	8-9	20-24	10-11
2	8-10	9-11	5-6	6-7	15-19	8-9
1	0-7	0-8	0-4	0-5	0-14	0-7
Mean	19.6	23.0	19.4	13.5	29.4	16.2
S.D.	8.3	8.3	9.2	4.9	7.0	5.8

Note.—Interest and Experience Scale results for each grade level were developed separately for each sex. Ability Scale results are based on males and females combined.

[a] This scale was revised subsequent to the norming. The norms reported are estimates based on data collected in the equating study described on page 40.

TABLE F-3

Preferred Job Characteristics: **Grade 8**

Job Values[a]

	Most Important			Second Most Important			Least Important		
	% M	% F	% T	% M	% F	% T	% M	% F	% T
A. Working with people I like (co-workers)	9	10	10	19	34	27	13	10	12
B. Being own boss, doing work as I want with nobody watching over me (independence)	9	3	6	10	5	7	31	41	36
C. Work that I enjoy doing, that is interesting to me (interest)	57	71	64	18	15	16	5	3	4
D. Having a steady job where I would not be fired (job security)	10	5	8	16	12	14	14	12	13
E. Being responsible for making decisions and for work of other people (responsibility)	4	3	3	8	10	9	24	20	22
F. Being well paid for my work (pay)	12	7	10	30	24	27	13	14	13

Working Condition Preferences

Condition 1	A. Strongly Prefer 1			B. Prefer 1			C. Prefer 2			D. Strongly Prefer 2			Condition 2
	% M	% F	% T	% M	% F	% T	% M	% F	% T	% M	% F	% T	
Indoor work	19	25	22	33	46	40	28	21	24	20	9	14	Outdoor work
Work with people	35	54	45	43	35	39	18	8	13	5	2	4	Work alone
Work at variety of tasks	29	30	30	40	46	43	21	19	20	10	5	7	Work at same task
Work with hands or do physical labor	43	31	37	31	37	34	15	22	18	11	11	11	Work at desk with little physical activity

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[a] Job values exercise on page 11 of *Exploring* now includes two additional categories—serving others and gaining status—for students to consider.

TABLE F-4

Response Distributions for Career Plans Items: **Grade 8**

First Occupational Preference by Job Family

Job Family Category	% M	% F	% Tot.
Business Sales & Management Cluster	(7)[a]	(6)	(6)
A. Promotion, direct contact sales	2	2	2
B. Management & planning	3	2	2
C. Retail sales & services	2	2	2
Business Operations Cluster	(7)	(17)	(12)
D. Clerical & secretarial work	0	13	7
E. Paying, receiving & bookkeeping	1	2	1
F. Office machine operation	5	2	3
G. Storage, dispatching, & delivery	1	0	1
Technologies & Trades Cluster	(47)	(5)	(27)
H. Human services crafts	0	2	1
I. Repair, service home/office equipment	4	0	2
J. Growing & caring for plants/animals	8	2	5
K. Construction & maintenance	9	0	5
L. Transport equipment operation	4	0	2
M. Machine operation, service, repair	11	0	6
N. Engineering, applied technologies	11	1	6
Natural, Social, & Medical Sciences	(15)	(15)	(15)
O. Natural sciences & mathematics	6	3	5
P. Medicine & medical technologies	8	11	9
Q. Social sciences & legal services	1	1	1
Creative & Applied Arts Cluster	(11)	(12)	(11)
R. Creative arts	4	6	5
S. Applied arts (verbal)	1	1	1
T. Applied arts (visual)	5	4	4
U. Popular entertainment	1	1	1
Social, Health, & Personal Services	(14)	(46)	(31)
V. Education & social services	5	19	13
W. Nursing & human care	1	18	10
X. Personal & household services	1	8	4
Y. Law enforcing/protective services	7	1	4

Note.—For detailed student directions, see Unit 2, item 2 of CPP 8-11 Student's Guide, *Exploring: You and Your Career.*

[a] Totals for job families in job clusters are shown in parentheses.

Certainty of First Occupational Preference

Degree of Certainty	% M	% F	% Tot.
Very sure	41	39	40
Fairly sure	46	48	47
Not sure at all	13	13	13

Note.—The item (Unit 2, item 4) was worded as follows: "Students often change their minds about job choices. How sure are you that your 'First Job Choice' will be the *same* in a year?"

Educational Plans

Amount/type of Education	% M	% F	% Tot.
Graduate from high school	16	18	17
Complete an apprenticeship program	2	1	1
Complete job training program in military	7	1	4
Complete up to 2 years in community college (junior college or technical school)	13	14	13
Complete up to 2 years in private business, trade or technical school	7	5	6
Complete 3 years or more of college	47	52	50
Something else	9	9	9

Note.—Directions for the item (Unit 2; item 1) were as follows: "What is the greatest amount of education you plan to complete during your life?"

TABLE F-5

Norms for CPP 8-11 Scales: **Grade 11 Males**

Interest Scales (Stanines and Associated Response Averages)

Stanine	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
9	4.1-5.0	3.8-5.0	3.7-5.0	4.7-5.0	4.4-5.0	4.4-5.0
8	3.8-4.0	3.5-3.7	3.4-3.6	4.3-4.5	4.0-4.3	4.0-4.3
7	3.4-3.7	3.2-3.4	3.1-3.3	4.0-4.2	3.6-3.9	3.6-3.9
6	3.1-3.3	2.9-3.1	2.8-3.0	3.7-3.9	3.1-3.5	3.2-3.5
5	2.8-3.0	2.6-2.8	2.4-2.7	3.3-3.6	2.7-3.0	2.8-3.1
4	2.4-2.7	2.3-2.5	2.1-2.3	2.9-3.2	2.3-2.6	2.4-2.7
3	2.0-2.3	2.0-2.2	1.8-2.0	2.4-2.8	1.8-2.2	2.0-2.3
2	1.6-1.9	1.6-1.9	1.3-1.7	2.0-2.3	1.4-1.7	1.5-1.9
1	1.0-1.5	1.0-1.5	1.0-1.2	1.0-1.9	1.0-1.3	1.0-1.4
Mean	2.9	2.7	2.5	3.4	2.9	3.0
S.D.	.7	.6	.7	.7	.8	.8

Experience Scales (Verbal Report Categories, Corresponding Stanine Interval(s), and Associated Response Averages)

Verbal report category	Correspond-ing stanine interval	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
Many	7-9	2.1-3.0	2.1-3.0	2.0-3.0	2.6-3.0	2.0-3.0	2.0-3.0
Some	4-6	1.5-2.0	1.5-2.0	1.4-1.9	1.9-2.5	1.4-1.9	1.5-1.9
Few	1-3	1.1-1.4	1.1-1.4	1.1-1.3	1.1-1.8	1.1-1.3	1.1-1.4
None	1	1.0	1.0	1.0	1.0	1.0	1.0
	Mean	1.8	1.8	1.7	2.2	1.7	1.7
	S.D.	.4	.4	.4	.4	.4	.4

Ability Scales (Stanines and Associated Raw Scores)

Stanine	Space Relations[a]	Reading Skills	Clerical Skills	Numerical Skills	Language Usage[a]	Mechanical Reasoning
9	39-40	38-40		25-25	44-48	32-35
8	37-38	36-37	35-35	23-24	42-43	29-31
7	33-36	32-35	34-34	20-22	40-41	26-28
6	29-32	28-31	31-33	17-19	37-39	22-25
5	22-28	23-27	26-30	14-16	34-36	18-21
4	18-21	18-22	21-25	10-13	29-33	15-17
3	14-17	14-17	15-20	7-9	25-28	12-14
2	11-13	10-13	9-14	5-6	19-24	9-11
1	0-10	0-9	0-8	0-4	0-18	0-8
Mean	25.0	24.5	25.9	14.8	33.8	19.7
S.D.	8.8	8.4	8.1	5.8	6.9	6.7

Note.—Interest and Experience Scale results for each grade level were developed separately for each sex. Ability Scale results are based on males and females combined.

[a] This scale was revised subsequent to the norming. The norms reported are estimates based on data collected in the equating study described on page 40.

TABLE F-6

Norms for CPP 8-11 Scales: **Grade 11 Females**

Interest Scales (Stanines and Associated Response Averages)

Stanine	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
9	4.8-5.0	3.8-5.0	4.3-5.0	3.6-5.0	4.2-5.0	4.7-5.0
8	4.6-4.7	3.4-3.7	4.0-4.2	3.3-3.5	3.7-4.1	4.4-4.6
7	4.3-4.5	3.1-3.3	3.6-3.9	2.9-3.2	3.3-3.6	4.1-4.3
6	4.0-4.2	2.8-3.0	3.2-3.5	2.5-2.8	2.8-3.2	3.7-4.0
5	3.7-3.9	2.5-2.7	2.8-3.1	2.1-2.4	2.3-2.7	3.3-3.6
4	3.3-3.6	2.2-2.4	2.4-2.7	1.8-2.0	1.9-2.2	2.8-3.2
3	2.9-3.2	1.9-2.1	2.0-2.3	1.5-1.7	1.5-1.8	2.4-2.7
2	2.5-2.8	1.6-1.8	1.6-1.9	1.3-1.4	1.3-1.4	1.9-2.3
1	1.0-2.4	1.0-1.5	1.0-1.5	1.0-1.2	1.0-1.2	1.0-1.8
Mean	3.7	2.6	3.0	2.3	2.6	3.4
S.D.	.7	.6	.8	.7	.9	.8

Experience Scales (Verbal Report Categories, Corresponding Stanine Interval(s), and Associated Response Averages)

Verbal report category	Corresponding stanine interval	Social Service	Business Contact	Business Detail	Technical	Science	Creative Arts
Many	7-9	2.3-3.0	2.1-3.0	2.1-3.0	1.8-3.0	1.8-3.0	2.2-3.0
Some	4-6	1.7-2.2	1.6-2.0	1.6-2.0	1.3-1.7	1.4-1.7	1.6-2.1
Few	1-3	1.1-1.6	1.1-1.5	1.1-1.5	1.1-1.2	1.1-1.3	1.1-1.5
None	1	1.0	1.0	1.0	1.0	1.0	1.0
	Mean	2.0	1.8	1.8	1.5	1.6	1.9
	S.D.	.4	.4	.3	.3	.3	.4

Ability Scales (Stanines and Associated Raw Scores)

Stanine	Space Relations[a]	Reading Skills	Clerical Skills	Numerical Skills	Language Usage[a]	Mechanical Reasoning
9	39-40	38-40		25-25	44-48	32-35
8	37-38	36-37	35-35	23-24	42-43	29-31
7	33-36	32-35	34-34	20-22	40-41	26-28
6	29-32	28-31	31-33	17-19	37-39	22-25
5	22-28	23-27	26-30	14-16	34-36	18-21
4	18-21	18-22	21-25	10-13	29-33	15-17
3	14-17	14-17	15-20	7-9	25-28	12-14
2	11-13	10-13	9-14	5-6	19-24	9-11
1	0-10	0-9	0-8	0-4	0-18	0-8
Mean	25.0	24.5	25.9	14.8	33.8	19.7
S.D.	8.8	8.4	8.1	5.8	6.9	6.7

Note.—Interest and Experience Scale results for each grade level were developed separately for each sex. Ability Scale results are based on males and females combined.

[a] This scale was revised subsequent to the norming. The norms reported are estimates based on data collected in the equating study described on page 40.

TABLE F-7

Preferred Job Characteristics: **Grade 11**

Job Values[a]

	Most Important			Second Most Important			Least Important		
	% *M*	% *F*	% *T*	% *M*	% *F*	% *T*	% *M*	% *F*	% *T*
A. Working with people I like (co-workers)	6	9	7	22	38	30	12	6	10
B. Being own boss, doing work as I want with nobody watching over me (independence)	9	2	5	10	7	8	32	41	36
C. Work that I enjoy doing, that is interesting to me (interest)	69	80	74	15	12	13	2	2	2
D. Having a steady job where I would not be fired (job security)	6	4	5	15	11	13	15	14	15
E. Being responsible for making decisions and for work of other people (responsibility)	3	2	3	8	9	8	25	23	24
F. Being well paid for my work (pay)	8	3	6	32	25	28	13	14	13

Working Condition Preferences

Condition 1	**A. Strongly Prefer 1**			**B. Prefer 1**			**C. Prefer 2**			**D. Strongly Prefer 2**			**Condition 2**
	% *M*	% *F*	% *T*	% *M*	% *F*	% *T*	% *M*	% *F*	% *T*	% *M*	% *F*	% *T*	
Indoor work	19	20	19	39	52	45	28	22	25	14	6	10	Outdoor work
Work with people	32	54	43	49	37	43	16	7	12	3	2	3	Work alone
Work at variety of tasks	35	37	36	46	50	48	15	12	13	4	2	3	Work at same task
Work with hands or do physical labor	34	25	29	38	41	39	20	26	23	8	9	8	Work at desk with little physical activity

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[a] Job values exercise on page 11 of *Exploring* now includes two additional categories—serving others and gaining status—for students to consider.

TABLE F-8

Response Distributions for Career Plans Items: **Grade 11**

First Occupational Preference by Job Family

Job Family Category	*% M*	*% F*	*% Tot.*
Business Sales & Management Cluster	(8)	(5)	(6)
A. Promotion, direct contact sales	3	2	2
B. Management & planning	4	1	3
C. Retail sales & services	1	2	1
Business Operations Cluster	(9)	(22)	(16)
D. Clerical & secretarial work	0	16	8
E. Paying, receiving & bookkeeping	4	4	4
F. Office machine operation	4	2	3
G. Storage, dispatching, & delivery	1	0	1
Technologies & Trades Cluster	(46)	(7)	(26)
H. Human services crafts	0	2	1
I. Repair, service home/office equipment	4	0	2
J. Growing & caring for plants/animals	7	2	4
K. Construction & maintenance	10	0	5
L. Transport equipment operation	2	0	1
M. Machine operation, service, repair	11	1	6
N. Engineering, applied technologies	12	2	7
Natural, Social, & Medical Sciences	(16)	(14)	(14)
O. Natural sciences & mathematics	6	3	4
P. Medicine & medical technologies	8	8	8
Q. Social sciences & legal services	2	3	2
Creative & Applied Arts Cluster	(11)	(11)	(11)
R. Creative arts	4	4	4
S. Applied arts (verbal)	2	2	2
T. Applied arts (visual)	4	5	5
U. Popular entertainment	1	0	0
Social, Health, & Personal Services	(13)	(43)	(27)
V. Education & social services	6	20	13
W. Nursing & human care	1	16	8
X. Personal & household services	1	6	3
Y. Law enforcing/protective services	5	1	3

Note.—For detailed student directions, see Unit 2, item 2 of CPP 8-11 Student's Guide, *Exploring: You and Your Career.*

[a] Totals for job families in job clusters are shown in parentheses.

Certainty of First Occupational Preference

Degree of Certainty	*% M*	*% F*	*% Tot.*
Very sure	31	33	32
Fairly sure	45	47	46
Not sure at all	24	20	22

Note.—The item (Unit 2, item 4) was worded as follows: "Students often change their minds about job choices. How sure are you that your 'First Job Choice' will be the *same* in a year?"

Educational Plans

Amount/type of Education	*% M*	*%F*	*% Tot.*
Graduate from high school	14	17	15
Complete an apprenticeship program	5	1	3
Complete job training program in military	5	2	4
Complete up to 2 years in community college (junior college or technical school)	15	22	18
Complete up to 2 years in private business, trade or technical school	7	7	7
Complete 3 years or more of college	49	44	46
Something else	6	7	6

Note.—Directions for the item (Unit 2, item 1) were as follows: "What is the greatest amount of education you plan to complete during your life?"

APPENDIX G:

CPP 8-11 TRANSPARENCY MASTERS

The transparency masters included here are intended to help counselors introduce CPP 8-11 concepts and materials to student groups. These transparency masters may be used with an opaque projector or run through a transparency producer or thermofax machine to produce transparencies for use with an overhead projector. The text included with the visuals should be considered only as a source of ideas. Counselors are urged to develop and vary their own presentations according to their style and the needs of their students.

Set One: Introducing the Career Planning Program to Students

Set one visuals can be used to introduce the Career Planning Program to students just prior to handing out *Exploring: You and Your Career*. Counselors presenting the Mini-Course in Career Planning may prefer to use the visuals as an introduction to the mini-course or as a part of Unit 1.

TRANSPARENCY 1: A Career Is Like a Journey

Begin the session by exploring the meaning of the word "career." The career-as-journey analogy suggested in the transparency may be a useful starting point for discussion. Ask students to look at the person in the transparency and to suppose that they are faced with the same questions. Draw out that *everyone* makes decisions about education and work throughout life and therefore has a career. Have the students identify some factors that affect career directions, such as goals, interests, environmental roadblocks and opportunities, etc. Be sure students understand the time-extensive, developmental nature of careers and the fact that careers are *not* limited to the "non-college-bound."

Then say something like this:

> "In the next few weeks, we'll be working with some materials that will help you think about and explore some answers to these questions. You'll each be receiving a booklet called *Exploring: You and Your Career*, which contains some exercises that will help you learn more about yourself and about the kinds of jobs you might like." (Hold up a booklet for all students to identify.) "What follows is a preview of some of the things in *Exploring* and the Career Planning Program."

TRANSPARENCY 2: Your Career

> "Each one of you has a career. Careers are not just for students going to work right after high school. Careers are for everyone. Look at the pictures of the people in the different jobs, doing different things. They have made many decisions related to their education and work. You will face many of these same decisions." (Have the students think about the career-related experiences and decisions of some of the workers, for example, the carpenter and chemist. Students might be asked to consider the following:

1. What high school courses did each elect?
2. What high school courses did each probably like?
3. What school activities might each have liked?

4. How did each prepare for his/her job?

5. What part-time jobs might each have done?

6. What kinds of rewards might each job offer?

Remind students again that careers are for everyone.)

TRANSPARENCY 3: Career Decision Making

"Sometimes, people have to make decisions and sometimes decisions can be confusing and hard to make. You, too, will have to make decisions about which directions your career will take. And you might have to make some of these decisions fairly soon. For example, you might have to decide which of two high school courses to take, or whether to work after school instead of going out for a sport or band." (Identify other decision-making situations that the students will face, some of which may be generic to the local school or community.) *"Exploring: You and Your Career* will help you learn the steps in career planning and decision making—steps you can use as you face and make *your* career decisions."

TRANSPARENCY 4: Job Clusters

"The world of work has over 21,000 different jobs, so it's easy to see that thinking about job choices can be pretty confusing. *Job Clusters* may help you organize your thoughts. In the Career Planning Program, the 21,000 jobs are grouped into the six "bunches" or *clusters* shown on the transparency. Each of the Job Clusters contains similar jobs, and each represents a major region of the world of work that differs from other regions.

"One of the main ways in which jobs differ is in how much they involve working with data, ideas, people, and things." (Point to the middle of the transparency.) "Any job will involve some work with each, but most jobs emphasize only one or two of these basic work tasks." (Page 17 of *Exploring* provides examples of the data/ideas, people/things dimensions. A discussion of the involvement of several specific jobs with data, ideas, people, and things may help to highlight these concepts. Encourage students to consider their own feelings about working with data, ideas, people, and things.)

TRANSPARENCY 5: Job Families

The idea of this transparency may be clearer for students if the lower half is covered while the following points are made:

"The six Job Clusters each cover a lot of jobs. These can be broken down into Job Families. Job Families are groups of jobs that are similar in terms of the kind of work that is done and why the work is done. Each of the six Job Clusters contains several Job Families. For example, the Business Sales and Management Job Cluster shown on the transparency contains three Job Families: (A) Promotion and Direct Contact Sales; (B) Management and Planning; (C) Retail Sales and Services. You can also see that each of these three Job Families contains a number of similar jobs." (As time permits, discuss the similarities of jobs in a Job Family by selecting two or three jobs from a specific family. Be careful to point out that jobs in a job family can also differ in important ways.)

Uncover the lower half of the transparency and continue.

"At the bottom of the transparency, you can see some of the many jobs found in Job Family A: Promotion and Direct Contact Sales. *Exploring: You and Your Career* has charts like this for each of 25 Job Families. Notice that the jobs are arranged to show the type or length of preparation they typically require." (Briefly discuss several examples from the chart, pointing out the similarities in work tasks and variety in types of preparation required.)

TRANSPARENCY 6: Self-Awareness

"A good way to start career exploring is to learn more about yourself. What kind of person are you? How would you describe yourself? Here are some things you might want to think about. For example, what do you value in a job—being your own boss? doing work that you enjoy? being well paid? How about working conditions? Which ones do you prefer—working indoors? working with people? doing physical labor? What kinds of abilities and assets do you have—mechanical ability? artistic ability? social self-confidence? Think about these things for awhile. They can help you learn about yourself." (A discussion of the role of self-awareness and self-exploration in career exploration might be appropriate. Briefly mention the self-awareness exercises in *Exploring*, pages 11-13, the assessment activities on pages 35-39 of *Exploring*, and the ability scales of Booklet 2: *Ability Measures*. Discuss how these exercises can help students learn about themselves.)

TRANSPARENCY 7: Educational Avenues for Your Career Journey

"What educational roads should you follow on your career journey? What destinations should you have?

The educational road map in *Exploring* can help you see the many different educational avenues that are possible. You'll have to spend some time studying the map before you can plan your own route." (Trace one or two routes on the map.)

TRANSPARENCY 8: Career Exploration Activities

"What can you do to explore jobs that look interesting? How can you find out about different jobs? Here are a few career exploration activities that can help you learn more about the job or jobs you might be interested in. You'll find more suggestions in *Exploring: You and Your Career.*" (Point to and briefly describe each of the activities on the transparency. Cite local resources whenever possible.)

Final Comments. At this point, briefly review the school's plan for using the CPP and restate the purposes of the program. The *Exploring* booklet can be distributed and instructions given for activities leading to the Mini-Course in Career Planning or other guidance activities planned by the school.

Set Two: Helping Students Interpret Their CPP 8-11 Student Reports

The CPP 8-11 Student Report has been designed so that, with a minimum of counselor assistance, most students will be able to begin self/career exploration in a systematic manner. Counselors can use this set of transparency masters to highlight the main ideas of the Student Report and to help students make full and appropriate use of the information that is provided. The transparency masters might be most effectively used with students just prior to distribution of the Student Reports. Counselors are urged to check the follow-up unit for the Mini-Course in Career Planning (Unit 9). The suggestions below assume that students have been introduced to the self/career exploration resources in *Exploring* (Parts 2 and 5 in particular), either through the Mini-Course or via counselor-monitored self-study.

TRANSPARENCY 9: A Career Is Like a Journey

Begin the session by reminding students that they have a career ahead of them—"a whole series of activities and decisions related to *education* and *work.*" Note that this applies to students who plan to: attend college, join the army, get married, drop out of school, travel for a while, find a job, become a doctor, plumber, philosopher—or whatever. Note also that a career is like a life-long journey and use the transparency to indicate some of the questions students will soon have to answer. Finally, point out that the CPP 8-11 Student Report and *Exploring* are designed to help them find ways to answer their questions.

TRANSPARENCY 10: The CPP 8-11 Student Report—How to Use It

You may wish to paraphrase the following remarks:

"Your Student Reports for the CPP 8-11 have arrived and so we are finally ready to talk about how you can use and understand your report. Here is a copy of what the reports will look like." (Hold up a report for the group to see.) "Before we give out the reports, we would like to give you some examples of the ways they can be used. Remember that the purpose of these reports is to help you find some starting points for exploring the directions that your career might take. Let's take a look at a report for Gary Smith (the name has been changed) to see how he used his information in career exploration.

"Gary grew up on a midwestern farm and spent quite a bit of his time helping with work there. As a result, he has had many experiences in operating and fixing farm machines. From these experiences he learned that he was not particularly good at mechanical activities and really did not like this kind of work. However, he found that he did enjoy the time he spent helping his Dad keep the farm records. He also realized he liked to work indoors rather than outdoors."

(Special note.—This information might be used later in impromptu discussions of Gary's results.)

TRANSPARENCY 11: Case One—Gary Smith

"As you look at Gary's CPP report, you should recognize several ideas that are explained in your *Exploring* booklet. Let's think of Gary as being the figure in the middle looking over the four basic work activities—working with data, things, ideas, and people." (Point to figure.) "You also see six job clusters and within each of these job clusters, job families containing similar jobs." (Point out the job clusters and job families and elaborate if time is available. The explanation in Part 2 of *Exploring* might be used.) "Now, let's look at some steps that can help Gary use his report. They are printed under the flap on the report." (Hold up report and show location.)

Step One: "The first step for Gary is to circle the job families which contain his first and second job preferences. Gary's first and second job choices are lawyer and bookkeeper. (He liked keeping the books for his Dad, but he also knows that his brother-in-law makes a good living as a lawyer.) Notice that 1s have been printed next to job family Q, and 2s have been printed next to job family E to identify the job families that include Gary's choices." (Circle these job families with a grease pencil.)

"Gary's Student Report also includes stars printed next to some of the job families. These stars are based on the results of the CPP interest and ability tests Gary took earlier. They are meant to suggest job families that Gary may want to explore—to look into. The next few steps explain how." (If asked, explain that stars—"Exploration Priorities"—should *not* be thought of as predictions of satisfaction or success, but rather, as indications of job families in line with a student's interests or abilities. Tell students that only by exploring jobs in these families can they find out if they would *enjoy* and *be able to do* the work. Counselors interested in the measurement and statistical bases for the Exploration Priorities should consult Part 4 of this handbook.)

Step Two: "As a second step, Gary should circle the job families where a star appears in both the interest and the ability columns. For Gary, these are job families A, C, D, and Y." (Circle the job families.)

Step Three: "Gary also should circle the job families where he has a star in the interest column only. This would add job family B to Gary's list." (Circle job family B.)

Step Four: "Gary now has identified seven job families which he should explore and learn more about. So—how *does* he find out more about these job families? The back of the Student Report has some ideas for doing this."

Step Five: "On the back of his report, Gary found step five in career exploration." (Point to the back of the report and note that this step and the three that follow are explained there.) "He also saw this chart called 'A Preview of Job Families.'"

TRANSPARENCY 12: A Preview of Job Families

"As suggested in step five, Gary circled the letters for the seven job families he had circled on the front of the report."

Step Six: "Gary chose one of seven job families, job family Q, as the starting place for career exploration. Job family Q contained his first job choice—lawyer."

Step Seven: "Gary next found job family Q on the chart and noted that it mostly involves working with ideas and people." (If there is time, explain the data, ideas, people, and things work tasks using the description on page 17 of *Exploring.)*

TRANSPARENCY 13: Abilities and Interests Related to the Basic Kinds of Work

"When Gary looked at abilities needed to work with ideas, he noted the emphasis on solving problems and expressing thoughts in inventive ways." (Point to the ideas section of the transparency.) "Gary remembered that lawyers and other jobs in job family Q also involve working with people. So he checked that section of the chart for the abilities and interests involved. He also noted that several of the abilities and interests listed in the chart were measured by the CPP. Later he would check his ability and interest scores which are printed under the flap on the front of his report." (Point to appropriate sections of the transparency and a sample report.)

TRANSPARENCY 14: Tips for Exploring the Road Ahead

Step Eight: "Gary wanted to find out more about the jobs in job family Q. He realized that he really didn't know much about what lawyers do and he also wondered about other jobs in the job family. Gary found several ideas on how to explore these jobs on the back of this report (give brief examples) and in *Exploring.*" (See Part 6.) "He decided he would also look into job family E (Paying, Receiving, and Bookkeeping) and job family A (Promotion and Direct Contact Sales). He hadn't thought about jobs in job family A before. It was one of the job families suggested by the 'stars' on the front of his report."

TRANSPARENCY 15: Case Two—Carol Jones

"Just as a review, let's look at the CPP Student Report for Carol Jones (the name has again been changed). Carol thinks she would like to be an X-ray Technician and is also interested in the possibility of teaching high school science. She wants to continue her education after high school by going to a nearby community college. Let's review the steps Carol might take at this point."

Step One: "Carol circled the job families that contained her first and second job preferences. Her first choice is in job family P and her second choice is in V." (Circle these job families.)

Step Two: "Next Carol circled the job families that had stars in *both* the interest and ability columns. These included job families N, R, and T." (Explain that in the case of job families R & T, the NA's should be considered to be the same as stars.)

Step Three: "Carol circled job family O where she also had a star in the interest column."

Step Four: "Carol found that she had circled families N, O, P, R, T, and V and was ready to turn her report over and look at the basic work tasks for each of these job families."

Step Five: "She circled these six letters on the Preview of Job Families chart and started looking closely at one of the job families, just as Gary had done. She would go back to the others later.

So far, we haven't said anything about the section at the bottom of the report called 'Your Region on the World of Work Map.'" (Point out.) "Carol's region, according to her interest scores, is 09. To see what this means, we have to look at the 'World of Work Map for Job Families' on page 19 of *Exploring.*" (If students have their copies of *Exploring*, ask them to turn to page 19.)

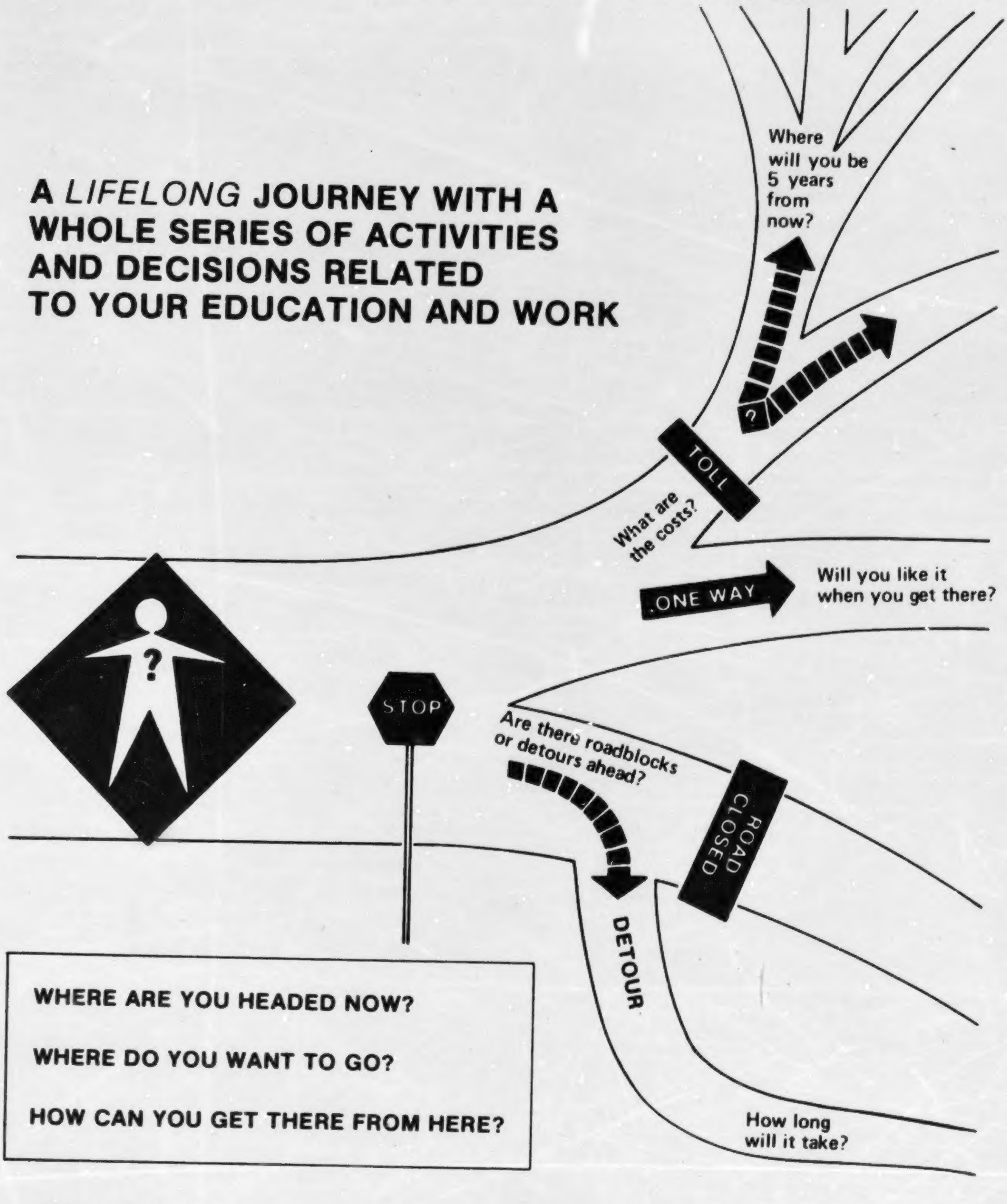
TRANSPARENCY 16: World of Work Map for Job Families

Point out Carol's region and note where it is located with respect to data, ideas, people, and things. Contrast its location with the location of Gary's region—03. Encourage students to identify job families in these regions and regions nearby. Finally, explain how they can identify jobs in these job families through the Job Family Charts in Part 7 of *Exploring*.

Final Comments. At this point, the reports can be distributed to students in the group. It is important that there be enough time for students to ask general questions about what is on the report. While students will find answers to these general questions useful, discussion of a specific student's results should, of course, be reserved for a follow-up counseling session.

The flap of the Student Report contains some general ideas about job clusters, job families, and the data/ideas, people/things dimensions of the work world. Ask students to read this and to look over Parts 5 and 6 of *Exploring*. Also, see Unit 9 of the Mini-Course in Career Planning for ideas on how to follow-up on the above introduction to the CPP 8-11 Student Report.

A CAREER IS LIKE A JOURNEY—


Where will you be 5 years from now?
?
TOLL
What are the costs?
ONE WAY
Will you like it when you get there?
?
STOP
Are there roadblocks or detours ahead?
ROAD CLOSED
DETOUR
How long will it take?

A *LIFELONG* JOURNEY WITH A WHOLE SERIES OF ACTIVITIES AND DECISIONS RELATED TO YOUR EDUCATION AND WORK

WHERE ARE YOU HEADED NOW?

WHERE DO YOU WANT TO GO?

HOW CAN YOU GET THERE FROM HERE?

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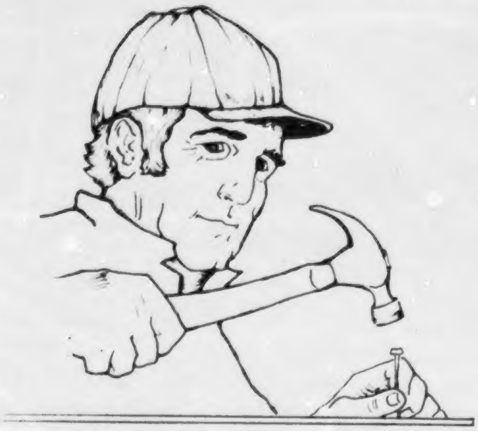
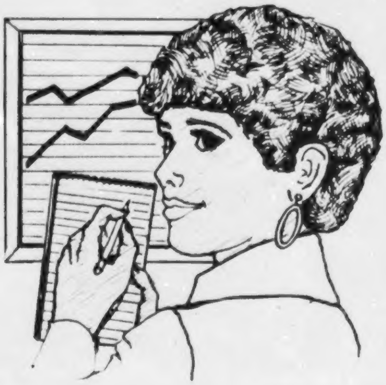
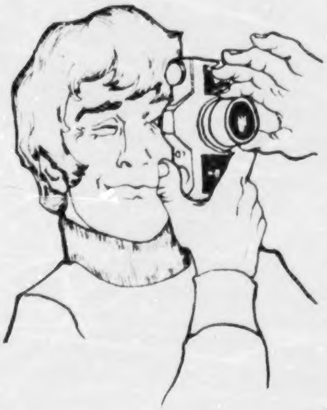
Transparency 1

YOUR CAREER

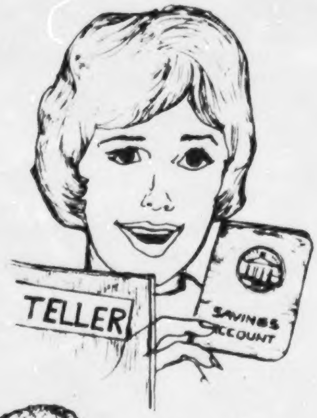
**CAREERS ARE NOT JUST FOR STUDENTS
GOING TO WORK AFTER HIGH SCHOOL!**

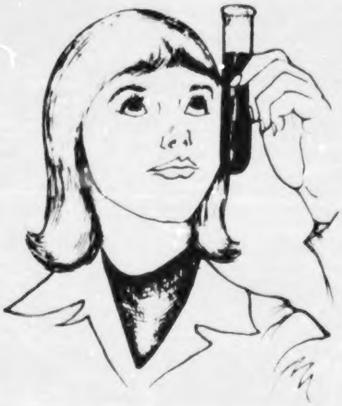


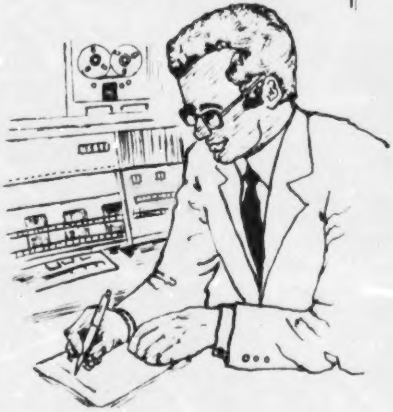




CAREERS ARE FOR EVERYONE!


TELLER
SAVINGS ACCOUNT





YOU HAVE A CAREER AHEAD OF YOU!

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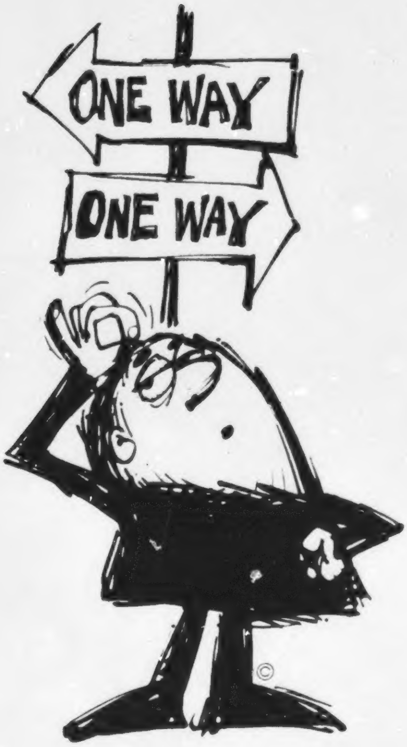
Transparency 2

CAREER DECISION MAKING



SOMETIMES DECISIONS CAN BE CONFUSING

AND HARD TO MAKE

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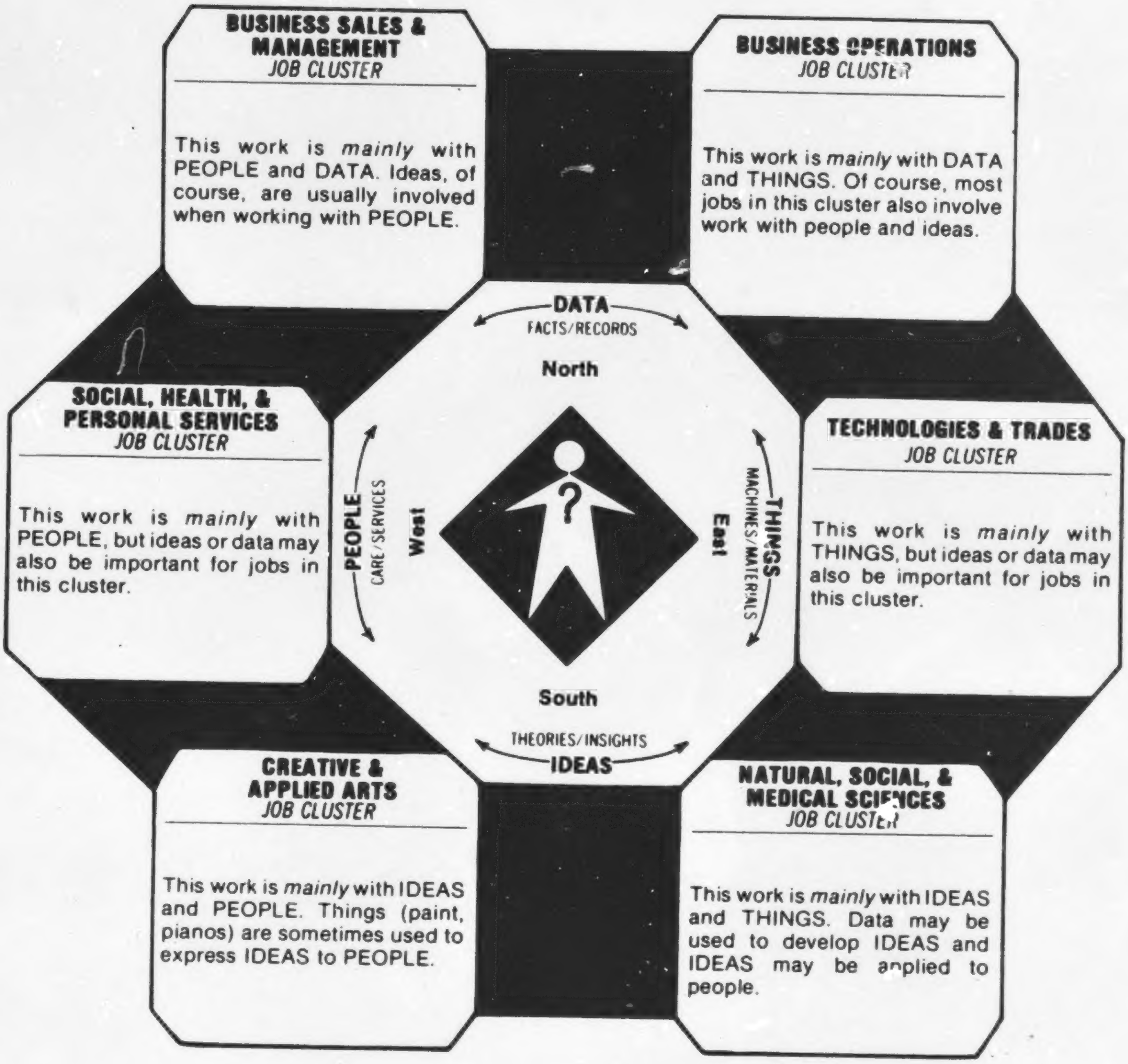
Transparency 3

JOB CLUSTERS IN THE WORLD OF WORK


DATA
FACTS/RECORDS
North
PEOPLE
CARE/SERVICES
West
?
East
THINGS
MACHINES/MATERIALS
South
THEORIES/INSIGHTS
IDEAS

BUSINESS SALES & MANAGEMENT
JOB CLUSTER

This work is *mainly* with PEOPLE and DATA. Ideas, of course, are usually involved when working with PEOPLE.

BUSINESS OPERATIONS
JOB CLUSTER

This work is *mainly* with DATA and THINGS. Of course, most jobs in this cluster also involve work with people and ideas.

SOCIAL, HEALTH, & PERSONAL SERVICES
JOB CLUSTER

This work is *mainly* with PEOPLE, but ideas or data may also be important for jobs in this cluster.

TECHNOLOGIES & TRADES
JOB CLUSTER

This work is *mainly* with THINGS, but ideas or data may also be important for jobs in this cluster.

CREATIVE & APPLIED ARTS
JOB CLUSTER

This work is *mainly* with IDEAS and PEOPLE. Things (paint, pianos) are sometimes used to express IDEAS to PEOPLE.

NATURAL, SOCIAL, & MEDICAL SCIENCES
JOB CLUSTER

This work is *mainly* with IDEAS and THINGS. Data may be used to develop IDEAS and IDEAS may be applied to people.

6 JOB CLUSTERS CONTAIN 25 JOB FAMILIES

AND OVER 21,000 DIFFERENT JOBS

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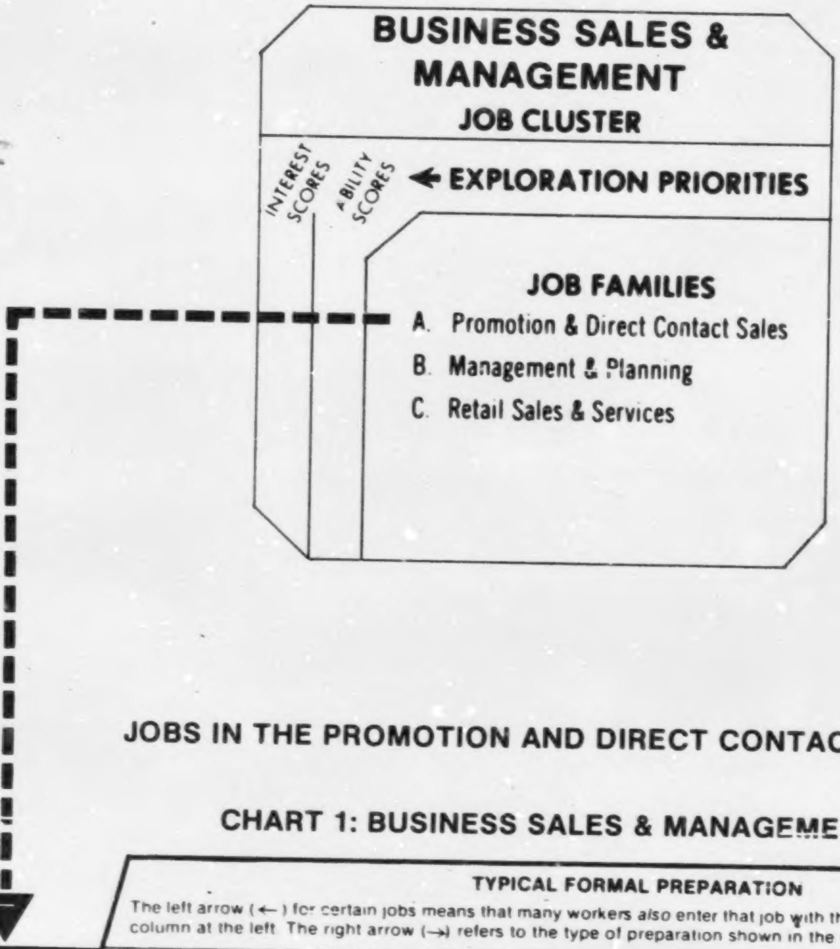
Transparency 4

JOB FAMILIES IN THE BUSINESS SALES AND MANAGEMENT JOB CLUSTER



JOB FAMILIES

A. Promotion & Direct Contact Sales
B. Management & Planning
C. Retail Sales & Services

JOBS IN THE PROMOTION AND DIRECT CONTACT SALES JOB FAMILY

CHART 1: BUSINESS SALES & MANAGEMENT CLUSTER

TYPICAL FORMAL PREPARATION

The left arrow (←) for certain jobs means that many workers *also* enter that job with the type of preparation shown in the column at the left. The right arrow (→) refers to the type of preparation shown in the column at the right.

	High School Graduation Desirable	Up to Two Years of Preparation beyond High School	Three or More Years of Preparation beyond High School
A PROMOTION AND DIRECT CONTACT SALES	House to house salesperson Sample distributor Promotion worker Peddler Demonstrator Interviewer Survey worker Telephone solicitor Car rental clerk Sound truck operator	Fashion model Photographer's model Travel clerk or agent Radio-TV time salesperson→ ←Auctioneer Encyclopedia salesperson→ Bridal consultant Wholesale salesworkers→ who visit customers to sell *products* such as—computers, medical and dental supplies, machinery, printing supplies, office machines, food products, petroleum products	Fashion coordinator ←Lobbyist ←Public relations worker ←Advertising worker ←Business agent ←Salesworker who sells services to customers, for example—stocks and bonds salesperson, insurance agent, account executive, real estate agent, and investment analyst

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Transparency 5

SELF-AWARENESS

WHAT KIND OF PERSON ARE YOU?

WHAT DO YOU VALUE IN A JOB . . .
BEING YOUR OWN BOSS?
DOING WORK THAT YOU ENJOY?
BEING WELL PAID?

WHAT KINDS OF ABILITIES DO YOU HAVE . . .
MECHANICAL ABILITY?
ARTISTIC ABILITY?
SOCIAL SELF-CONFIDENCE?

WHAT WORKING CONDITIONS DO YOU PREFER . . .
WORKING INDOORS?
WORKING WITH PEOPLE?
DOING PHYSICAL LABOR?

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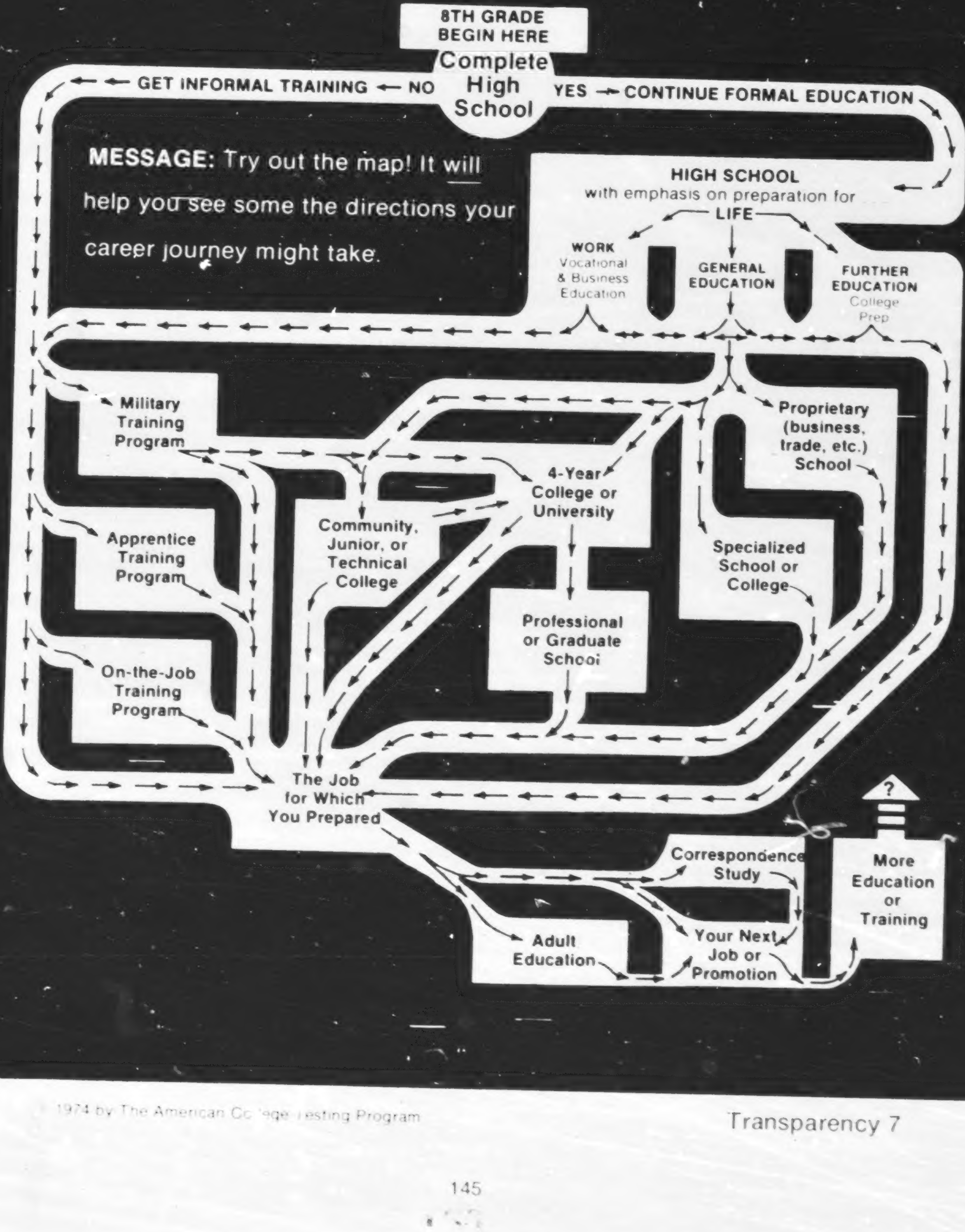
Transparency 6

EDUCATIONAL AVENUES FOR YOUR CAREER JOURNEY



8TH GRADE
BEGIN HERE

Complete High School

GET INFORMAL TRAINING ← NO

YES → CONTINUE FORMAL EDUCATION

MESSAGE: Try out the map! It will help you see some the directions your career journey might take.

HIGH SCHOOL
with emphasis on preparation for
LIFE

WORK
Vocational & Business Education

GENERAL EDUCATION

FURTHER EDUCATION
College Prep

Military Training Program

Apprentice Training Program

On-the-Job Training Program

Community, Junior, or Technical College

4-Year College or University

Proprietary (business, trade, etc.) School

Specialized School or College

Professional or Graduate School

The Job for Which You Prepared

Correspondence Study

Adult Education

Your Next Job or Promotion

More Education or Training

?

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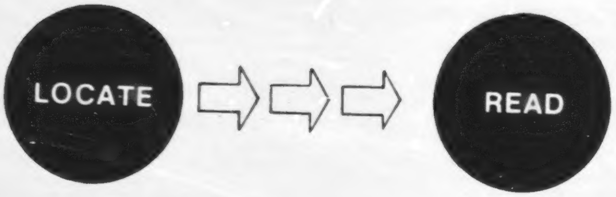
Transparency 7

CAREER EXPLORATION ACTIVITIES


LOCATE
READ

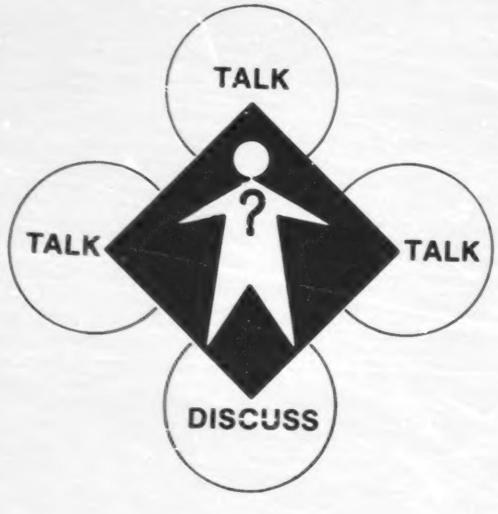
ACTIVITIES

1. FIND THE JOB IN THE *OCCUPATIONAL OUTLOOK HANDBOOK.*
2. READ AT LEAST ONE OTHER DESCRIPTION OF THE JOB.

LISTEN
VISIT
?
SEE

ACTIVITIES

3. SEE A FILM OR FILMSTRIP DESCRIBING THE JOB.
4. GO ON A TOUR OR VISIT TO SEE PEOPLE DOING THE JOB.


TALK
TALK
?
TALK
DISCUSS

ACTIVITIES

5. TALK WITH AT LEAST TWO PEOPLE WHO ARE IN TRAINING FOR THE JOB.
6. TALK WITH AT LEAST TWO PEOPLE WHO ARE DOING THE JOB.

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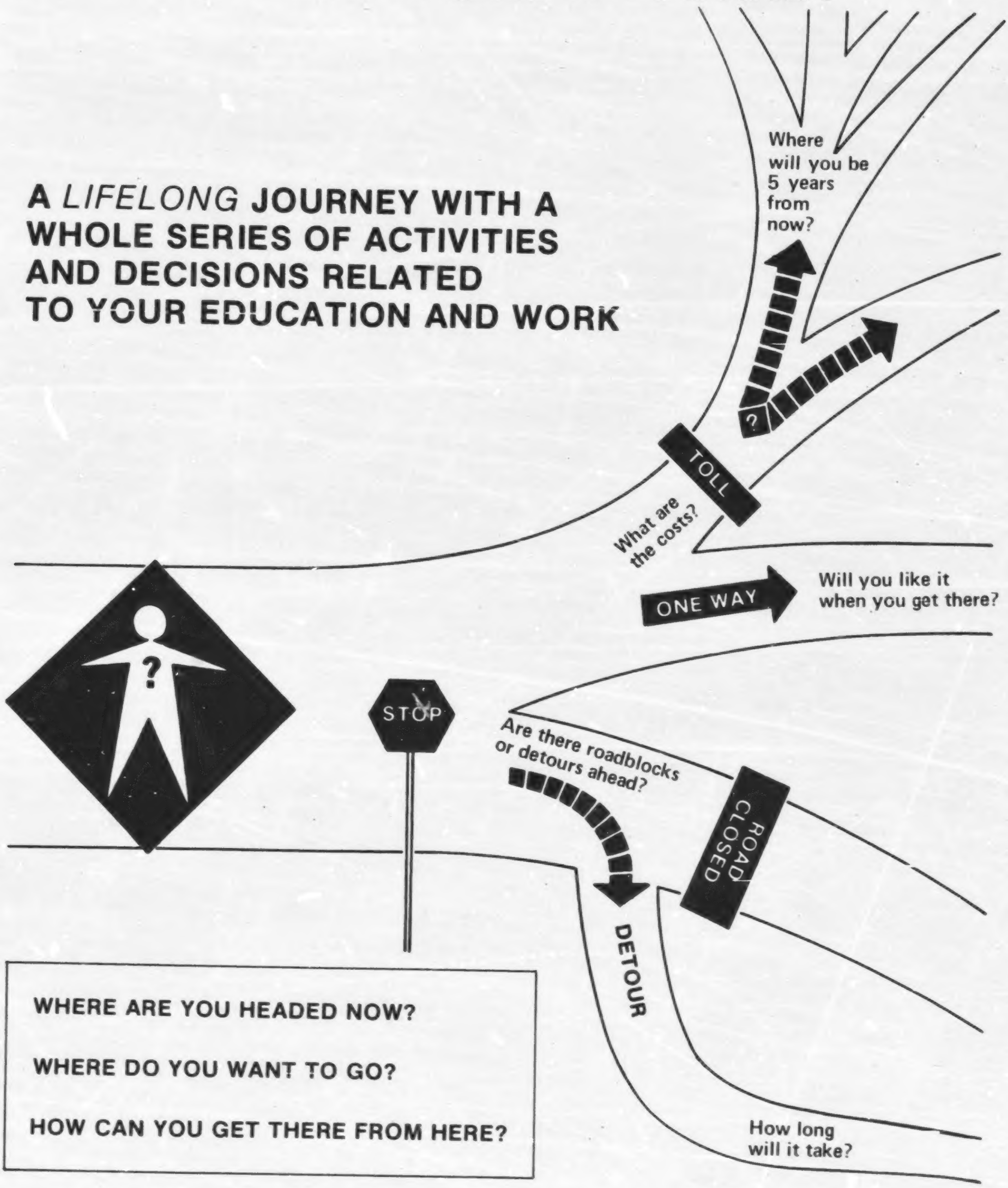
Transparency 8

A CAREER IS LIKE A JOURNEY—

A *LIFELONG* JOURNEY WITH A WHOLE SERIES OF ACTIVITIES AND DECISIONS RELATED TO YOUR EDUCATION AND WORK


Where will you be 5 years from now?
?
TOLL
What are the costs?
ONE WAY
Will you like it when you get there?
?
STOP
Are there roadblocks or detours ahead?
ROAD CLOSED
DETOUR
How long will it take?

WHERE ARE YOU HEADED NOW?

WHERE DO YOU WANT TO GO?

HOW CAN YOU GET THERE FROM HERE?

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Transparency 9

CPP
STUDENT
REPORT

HOW TO USE IT—A STEP BY STEP APPROACH

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Transparency 10

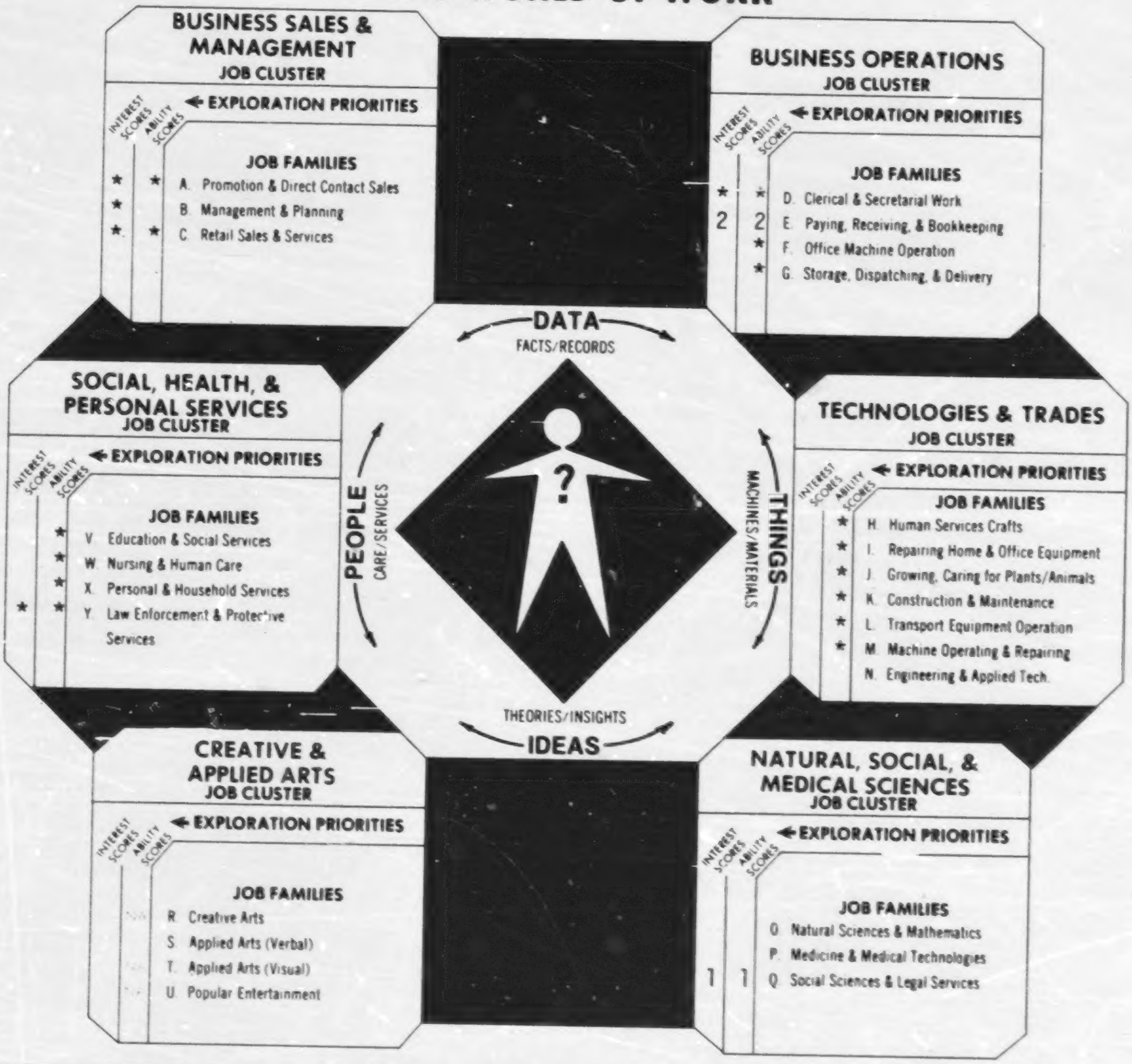
CASE 1 — GARY SMITH

SMITH, GARY A.
399-09-1426 MALE 9/17/60

WHITNEY JR HS
GRADE 9

TESTED: 3/74
NORM GP: 9TH GR

THE WORLD OF WORK



BUSINESS SALES & MANAGEMENT JOB CLUSTER
INTEREST SCORES
ABILITY SCORES
EXPLORATION PRIORITIES
JOB FAMILIES
★ ★ A. Promotion & Direct Contact Sales
★ B. Management & Planning
★ ★ C. Retail Sales & Services
BUSINESS OPERATIONS JOB CLUSTER
INTEREST SCORES
ABILITY SCORES
EXPLORATION PRIORITIES
JOB FAMILIES
★ ★ D. Clerical & Secretarial Work
2 2 E. Paying, Receiving, & Bookkeeping
★ F. Office Machine Operation
★ G. Storage, Dispatching, & Delivery
SOCIAL, HEALTH, & PERSONAL SERVICES JOB CLUSTER
INTEREST SCORES
ABILITY SCORES
EXPLORATION PRIORITIES
JOB FAMILIES
★ V. Education & Social Services
★ W. Nursing & Human Care
★ X. Personal & Household Services
★ ★ Y. Law Enforcement & Protective Services
TECHNOLOGIES & TRADES JOB CLUSTER
INTEREST SCORES
ABILITY SCORES
EXPLORATION PRIORITIES
JOB FAMILIES
★ H. Human Services Crafts
★ I. Repairing Home & Office Equipment
★ J. Growing, Caring for Plants/Animals
★ K. Construction & Maintenance
★ L. Transport Equipment Operation
★ M. Machine Operating & Repairing
N. Engineering & Applied Tech.
DATA
FACTS/RECORDS
PEOPLE
CARE/SERVICES
THINGS
MACHINES/MATERIALS
IDEAS
THEORIES/INSIGHTS
?
CREATIVE & APPLIED ARTS JOB CLUSTER
INTEREST SCORES
ABILITY SCORES
EXPLORATION PRIORITIES
JOB FAMILIES
R. Creative Arts
S. Applied Arts (Verbal)
T. Applied Arts (Visual)
U. Popular Entertainment
NATURAL, SOCIAL, & MEDICAL SCIENCES JOB CLUSTER
INTEREST SCORES
ABILITY SCORES
EXPLORATION PRIORITIES
JOB FAMILIES
O. Natural Sciences & Mathematics
P. Medicine & Medical Technologies
1 1 Q. Social Sciences & Legal Services

EDUCATIONAL PLANS YOU REPORTED
3 OR MORE YRS COLLEGE

JOB FAMILY CHOICES YOU REPORTED (SEE LETTERS IN JOB CLUSTERS ABOVE)	1ST	2ND	HOW SURE?
	Q	E	NOT SURE

YOUR REGION ON "WORLD OF WORK MAP" (SEE PART 5 IN YOUR COPY OF *EXPLORING*)	03

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Transparency 11

A PREVIEW OF JOB FAMILIES

Although any job will involve some work with PEOPLE, DATA, THINGS, & IDEAS, most jobs are heavy on only one or two basic work tasks. This is shown by the chart below. The larger X's mark the work tasks usually involved the most.

	BASIC WORK TASKS Working with —			
JOB FAMILIES	PEOPLE	DATA	THINGS	IDEAS
BUSINESS SALES & MANAGEMENT				
A. Promotion & Direct Contact Sales	X	x		
B. Management & Planning	X	X		
C. Retail Sales & Services	X	x		
BUSINESS OPERATIONS				
D. Clerical & Secretarial Work	x	X		
E. Paying, Receiving, & Bookkeeping	x	X		
F. Office Machine Operation		X	x	
G. Storage, Dispatching, & Delivery		x	X	
TECHNOLOGIES & TRADES				
H. Human Services Crafts	x		X	
I. Repairing Home & Office Equipment		x	X	
J. Growing, Caring for Plants/Animals		x	X	
K Construction & Maintenance		x	X	
L. Transport Equipment Operation		x	X	
M. Machine Operating & Repairing		x	X	
N. Engineering & Applied Technologies		x	X	x
NATURAL, SOCIAL, & MEDICAL SCIENCES				
O. Natural Sciences & Mathematics			x	X
P. Medicine & Medical Technologies	x			X
Q. Social Sciences & Legal Services	x			X
CREATIVE & APPLIED ARTS				
R. Creative Arts	x			X
S. Applied Arts (Verbal)	x			X
T. Applied Arts (Visual)			x	X
U. Popular Entertainment	X			x
SOCIAL, HEALTH, & PERSONAL SERVICES				
V. Education & Social Services	X			x
W. Nursing & Human Care	X	x		x
X. Personal & Household Services	x		X	
Y. Law Enforcement & Protective Services	x	x	x	

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Transparency 12

ABILITIES AND INTERESTS RELATED TO THE BASIC KINDS OF WORK

PEOPLE	DATA	THINGS	IDEAS
RELATED ABILITIES (* = Reported on other side)			
Ability to work with, serve, help, amuse, or influence the actions or thinking of people.	Ability to handle details, facts, figures, records, or files quickly and accurately. Ability to develop systematic ways for doing so.	**Ability to operate, repair, or build machinery or equipment, or to understand how living or non-living things function.**	Ability to solve problems and express thoughts or feelings in inventive or artistic ways.
Examples: Social skills Persuasive skills Leadership	Examples: Clerical skills* Language usage* Numerical skills* Management skills	Examples: Mechanical reasoning* Space relations* Numerical skills* Manual dexterity	Examples: Creativity Problem solving ability Artistic ability in chosen field
Reading Skills*, Numerical Skills*, and Language Usage* are general abilities used in most types of work, school courses, and many job preparation programs.			
RELATED INTERESTS (Reported on other side)			
SOCIAL SERVICE	BUSINESS DETAIL	TECHNICAL	CREATIVE ARTS
Business Contact	Business Contact	Science	Science
Creative Arts	Technical	Business Detail	Social Service

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Transparency 13

TIPS FOR EXPLORING THE ROAD AHEAD

ASK YOUR COUNSELOR OR LIBRARIAN ABOUT BOOKS AND PAMPHLETS TELLING ABOUT JOBS

TRY TO GET SOME FIRSTHAND INFORMATION ABOUT THE JOBS YOU ARE CONSIDERING

SEE IF YOUR SCHOOL CONDUCTS FIELD TRIPS TO BUSINESSES AND FACTORIES

LOCATE FRIENDS AND FORMER STUDENTS WHO ARE IN TRAINING OR ON THE JOB

TALK WITH TEACHERS ABOUT JOBS RELATED TO THEIR SUBJECTS

THINK ABOUT JOBS (FULL- AND/OR PART-TIME) AND EXPERIENCES (HOBBIES, ACTIVITIES, COURSES) YOU'VE HAD OR CAN "GET INTO"

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Transparency 14

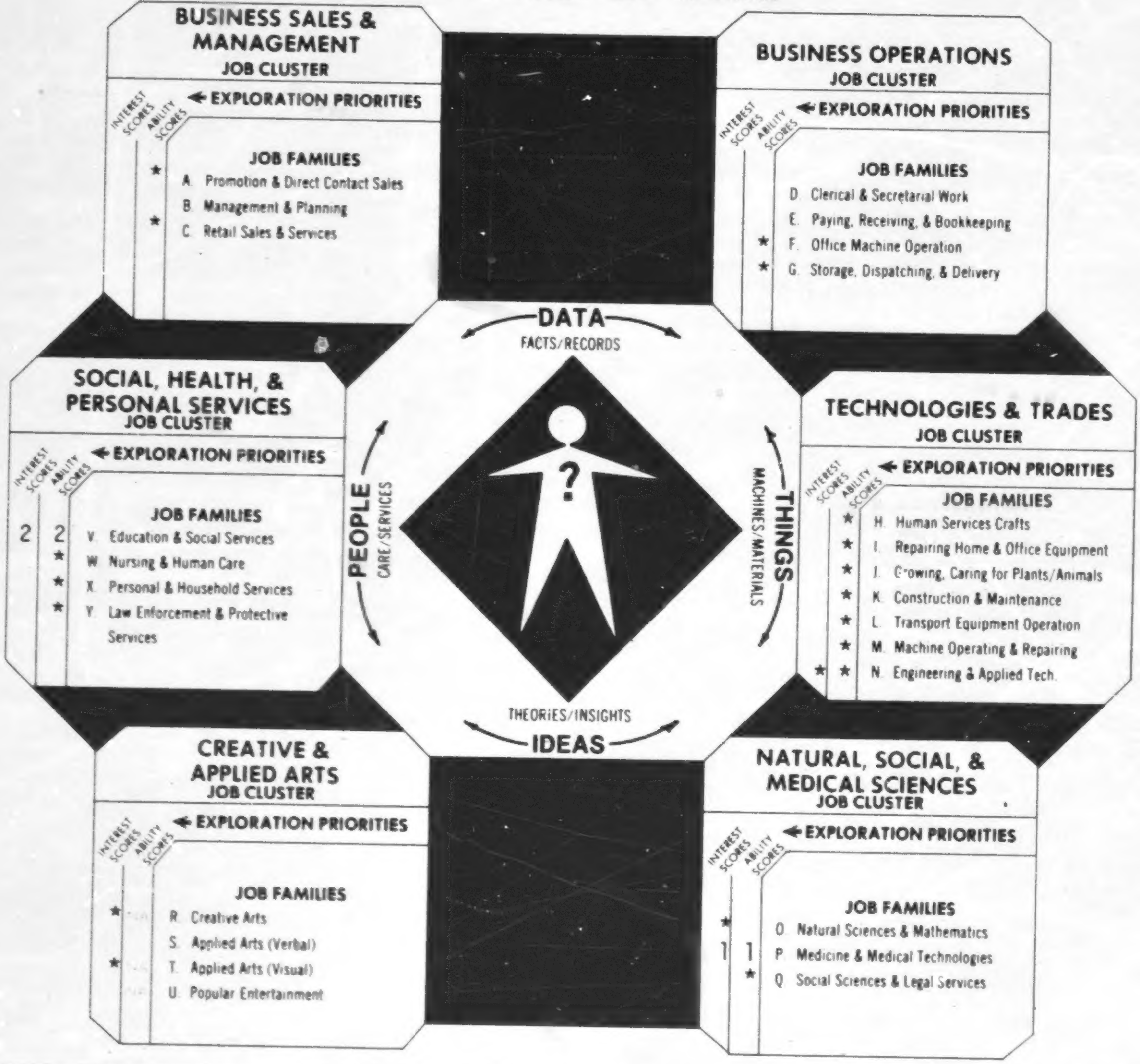
CASE 2 — CAROL JONES

JONES, CAROL S.
399-09-1974 FEMALE 7/1/57

CENTRAL HS
GRADE 11

TESTED: 3/74
NORM GP: 11TH GRADE

THE WORLD OF WORK



BUSINESS SALES & MANAGEMENT JOB CLUSTER

← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
	★	A. Promotion & Direct Contact Sales
		B. Management & Planning
	★	C. Retail Sales & Services

BUSINESS OPERATIONS JOB CLUSTER

← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
		D. Clerical & Secretarial Work
		E. Paying, Receiving, & Bookkeeping
	★	F. Office Machine Operation
	★	G. Storage, Dispatching, & Delivery

SOCIAL, HEALTH, & PERSONAL SERVICES JOB CLUSTER

← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
2	2	V. Education & Social Services
	★	W. Nursing & Human Care
	★	X. Personal & Household Services
	★	Y. Law Enforcement & Protective Services

TECHNOLOGIES & TRADES JOB CLUSTER

← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
	★	H. Human Services Crafts
	★	I. Repairing Home & Office Equipment
	★	J. Growing, Caring for Plants/Animals
	★	K. Construction & Maintenance
	★	L. Transport Equipment Operation
	★	M. Machine Operating & Repairing
★	★	N. Engineering & Applied Tech.

CREATIVE & APPLIED ARTS JOB CLUSTER

← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
★		R. Creative Arts
		S. Applied Arts (Verbal)
★		T. Applied Arts (Visual)
		U. Popular Entertainment

NATURAL, SOCIAL, & MEDICAL SCIENCES JOB CLUSTER

← EXPLORATION PRIORITIES

INTEREST SCORES	ABILITY SCORES	JOB FAMILIES
★		O. Natural Sciences & Mathematics
1	1	P. Medicine & Medical Technologies
	★	Q. Social Sciences & Legal Services

EDUCATIONAL PLANS YOU REPORTED
2 YR COMM, TECH COLLEGE

JOB FAMILY CHOICES YOU REPORTED (SEE LETTERS IN JOB CLUSTERS ABOVE)	1ST	2ND	HOW SURE?
	P	V	FAIRLY SURE

YOUR REGION ON "WORLD OF WORK MAP" (SEE PART 5 IN YOUR COPY OF *EXPLORING*)	09

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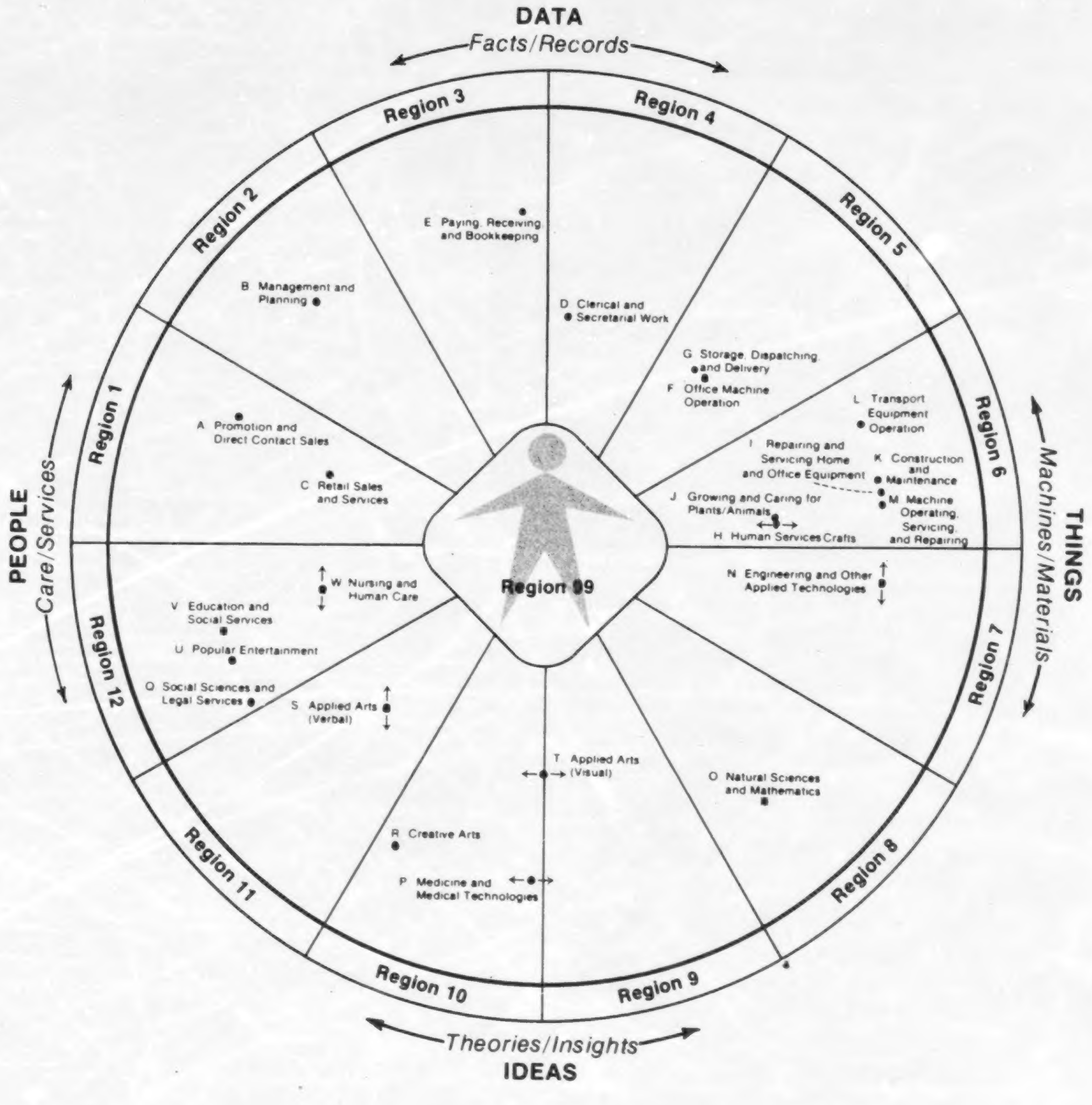
Transparency 15

WORLD OF WORK MAP FOR JOB FAMILIES


DATA
Facts/Records
Region 3
Region 4
Region 2
Region 5
Region 1
Region 6
Region 12
Region 7
Region 11
Region 8
Region 10
Region 9
Region 99
PEOPLE
Care/Services
THINGS
Machines/Materials
Theories/Insights
IDEAS
E Paying, Receiving and Bookkeeping
B Management and Planning
D Clerical and Secretarial Work
G Storage, Dispatching, and Delivery
F Office Machine Operation
L Transport Equipment Operation
A Promotion and Direct Contact Sales
C Retail Sales and Services
I Repairing and Servicing Home and Office Equipment
K Construction and Maintenance
J Growing and Caring for Plants/Animals
M Machine Operating, Servicing, and Repairing
H Human Services Crafts
W Nursing and Human Care
N Engineering and Other Applied Technologies
V Education and Social Services
U Popular Entertainment
Q Social Sciences and Legal Services
S Applied Arts (Verbal)
T Applied Arts (Visual)
O Natural Sciences and Mathematics
R Creative Arts
P Medicine and Medical Technologies

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Transparency 16